Sustainability
Report 2006

Our choice is clear:

Hydro Québec

Contents

2 Message from the President and Chief Executive Officer
4 Our Mission: To Provide High-Quality Electricity Service
6 Major Hydro-Québec Facilities

A Continuing Commitment to Sustainable Development
7 Bolstering our commitment
8 Working with our partners
9 Moving ahead with our business partners
9 Sharing our know-how

Our Choice: Green Energies
10 Guaranteeing a reliable supply for growing energy needs
13 Building projects that fit in
14 Meeting the challenges of wind power

Energy Efficiency: Encouraging Results
15 Being energy wise
16 Getting youngsters involved

Technological Innovation and Research
17 Meeting industry needs, and our own

Environmental Protection
19 Making the environment part of our [illegible]
20 Using resources responsibly
22 Protecting plants, animals and biodiversity
24 Integrating our facilities with the environment and protecting heritage
24 Managing and protecting water bodies
25 Preserving air quality

Social Commitment
26 Maintaining close ties with Aboriginal and other communities
28 Contributing to social progress
30 Dialoguing with youth

Partnering with Our Customers
31 Satisfying our customers' needs and expectations
33 Protecting public health and safety

Our Employees, the People behind Our Success
34 Ensuring competence, retention and development
36 Promoting a healthy work environment

Socioeconomic Spinoffs for Quebec and Its Regions
37 Contributing to the Québec economy
39 Supporting Regional Vitality

Hydro-Québec generates, transmits and distributes electricity, mainly using renewable energy sources, in particular hydroelectricity. It supports the development of wind energy through purchases from independent power producers. It also conducts research in energy-related fields such as energy efficiency. The company, whose sole shareholder is the Québec government, comprises four divisions:

Hydro-Québec Production generates power for the Québec market. When appropriate, it sells its surpluses on markets outside Québec, where it is also active in arbitraging and purchase/resale transactions.

Hydro-Québec TransÉnergie operates the most extensive transmission system in North America for the benefit of customers inside and outside Québec.

Hydro-Québec Distribution provides Quebecers with a reliable supply of electricity. To meet needs beyond the annual heritage pool which Hydro-Québec Production is obliged to supply at a fixed price, it mainly uses a tendering process. It also works to encourage its customers to make efficient use of electricity.

Hydro-Québec Équipement and Société d'énergie de la Baie James, a subsidiary of Hydro-Québec, are the prime contractors of construction projects for Hydro-Québec Production and Hydro-Québec TransÉnergie.

Our choice is clear. Clean and green.

Hydro-Québec has subscribed since 1989 to the concept of sustainable development as stated in the report of the Brundtland Commission in 1987: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." This is a fundamental principle that guides the company's long-term strategies and its daily operations.

In 1995, Hydro-Québec began publishing an annual report on its environmental performance. The scope of this report was expanded in 2002 to encompass the three spheres of sustainable development: environmental protection, social development and economic development. Then, in 2005, the *Sustainability Report* was deemed in accordance with the Global Reporting Initiative (GRI) guidelines.

In producing its *Sustainability Report 2006*, Hydro-Québec has drawn on the recently published third generation of GRI guidelines, which are more detailed. This report presents our main initiatives, which are carried out essentially in Québec, our sustainable energy choices and the progress we have made in the different areas of sustainable development. Our *Annual Report 2006*, *Profil régional des activités d'Hydro-Québec 2006*, *Financial Profile 2006–2007* and Web site supply additional information.

Sustainability at the heart of our daily activities

It is with great pride that I invite you to peruse Hydro-Québec's *Sustainability Report 2006*. In it, you will discover some highly encouraging results in the area of sustainable development, as well as certain avenues we plan to follow to improve our performance, always with a view to development that considers the needs of both present and future generations.

Reducing greenhouse gas emissions

At a time when issues related to world energy and climate are especially critical, Hydro-Québec is proud to use water to generate 97% of the energy it supplies to its customers. The choice we have made in favor of renewable energies is one that we are applying on a tangible level today through a number of projects based on hydroelectricity and wind power. Our projects will contribute to maintaining Québec's enviable record in terms of greenhouse gas emissions. They will also allow us to remain active on the Canadian and American export markets.

The past year saw several generating projects move ahead: Eastmain-1 powerhouse was commissioned, construction proceeded on the Péribonka, Chute-Allard and Rapides-des-Cœurs developments, and the Eastmain-1-A/Sarcelle/Rupert project received government approval. Together, these projects represent close to 2,000 MW in additional installed capacity. Elsewhere in the province, the environmental impact assessment continued on the planned 1,550-MW Romaine hydroelectric complex. As well, we brought Baie-des-Sables wind farm onto the grid, and activities related to the 2005 call for tenders for the purchase of 2,000 MW of wind power made steady progress.

Outstanding energy efficiency results

Close cooperation between Hydro-Québec and its customers yielded outstanding results in the realm of energy efficiency, accruing mainly from greater use of less energy-hungry appliances, changes in consumption patterns and the application of new industrial processes developed in our laboratories. Our target is now 4.7 TWh in energy savings by 2010 and 8 TWh by 2015—a sizable increase over previous expectations.

Technological innovation: A creative force

Our technological innovation efforts have played a large part in energy conservation. Expanded discussions were held with research centres and universities with a view to pooling our resources. As well, work continued on integrating wind power and customer generation onto a major grid, and optimizing building design and management from an energy standpoint. The use of electricity for land transportation is also a promising solution to greenhouse gas emissions.

A driving force in the Québec economy

With revenue of $11.2 billion in 2006, Hydro-Québec generates significant economic activity throughout the province. Purchases of goods and services alone from Québec businesses totaled $2.5 billion. The company also contributes to Québec's social, cultural and environmental vitality, and to health and education, through its donations and sponsorships, which amounted to nearly $23 million in 2006.

A reflection of our commitment

The *Sustainability Report 2006* is based on the newly published third generation of the *Global Reporting Initiative* guidelines. It offers a balanced, objective overview of Hydro-Québec's economic, social and environmental performance. It also reflects our many interactions with our customers, communities, socioeconomic stakeholders and, of course, our employees, who must meet many different challenges in maintaining our performance in sustainable development.

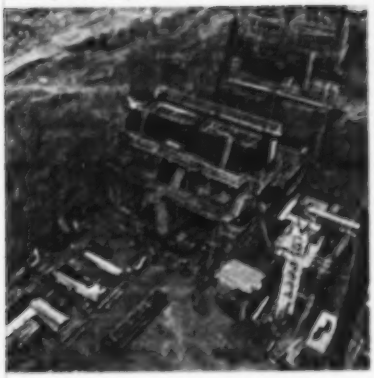
Thierry Vandal

President and Chief Executive Officer

Thierry Vandal

Our Mission:
To Provide High-Quality Electricity Service

Build the power system



Some figures

- 1,785 employees
- 3 megaprojects totaling $2.3 billion and 575 MW under construction at the end of 2006
- Over 1,150 generating and transmission projects and studies under way

Sustainability highlights

- Eastmain-1 powerhouse was completed and fully commissioned in December.
- Public environmental hearings were held for the Eastmain-1-A/Sarcelle/Rupert project in 2006; construction began in early 2007.
- Approvals were received and construction began on line projects to connect Chute-Allard, Rapides-des-Coeurs and Péribonka generating stations to the grid.
- Draft-design studies continued and public consultations began on the Romaine development project.

Generate electricity

Some figures

- 3,577 employees
- 60 generating facilities connected to the grid, including 54 hydropower stations (38 run-of-river)
- 73 rivers harnessed, of the 4,500 in Québec
- Revenue: $6.2 billion
- Net income: $2.1 billion

Sustainability highlights

- Bank protection structures were installed on the Grande Rivière to control erosion caused by water level fluctuations and soil instability.
- We continued our study on net greenhouse gas emissions from Eastmain-1 reservoir, before, during and after impoundment.
- A Web page was created to share knowledge about mercury, including the results of an extensive research program on reservoir mercury that has been ongoing for nearly 25 years.

Transmit electricity

Some figures

- 3,421 employees
- 32,826 km of lines
- 508 substations
- 168,584 hectares of line rights-of-way
- Many interconnections with neighboring provinces and states
- Revenue: $2.8 billion
- Net income: $632 million

Sustainability highlights

- $1.1 million was invested in 11 initiatives under the Integrated Enhancement Program.
- Studies confirmed the rich biodiversity in transmission line rights-of-way.
- We hosted the CIGRÉ Canada conference on the challenges of integrating wind energy into power systems.

Distribute electricity and serve customers

Some figures

- 8,150 employees
- 108,883 km of lines, 9% underground
- 3,815,126 customer accounts in Québec
- 61,810 new residential accounts
- 2,532,000 poles, 70% used jointly with telecommunications companies
- Revenue: $9.5 billion
- Net income: $42 million

Sustainability highlights

- Deployment of the Energy Efficiency Plan continued, and 643 GWh of savings were achieved, surpassing our objective of 523 GWh in 2006.
- A block of wind power was purchased as a result of our first call for tenders in 2005 (Rainy-des-Sables wind farm).
- Between May and December, we reached 1,684 special payment arrangements with low-income customers whose situation had not been resolved under the regular program.
- A new edition of our *Guide to Ornamental Trees and Shrubs* was published.
- The municipal liaison committees produced a guide to help municipalities prepare a security plan to deal with major blackouts.

Innovate in technology

Some figures

- 1,296 employees, including 478 at our research institute
- $48 million allocated to the research institute in 2006

Sustainability highlights

- A contribution was made to a new R&D infrastructure being set up by the Québec Advanced Transportation Institute.
- $4.8 million was allocated to Concordia University for research on efficient building design and management.
- $325,000 was contributed to the Solar Buildings Research Network.
- A Bird Eliminator II, with an electric drive unit developed by TM4, was added to our vehicle fleet.

Manage and support our business units

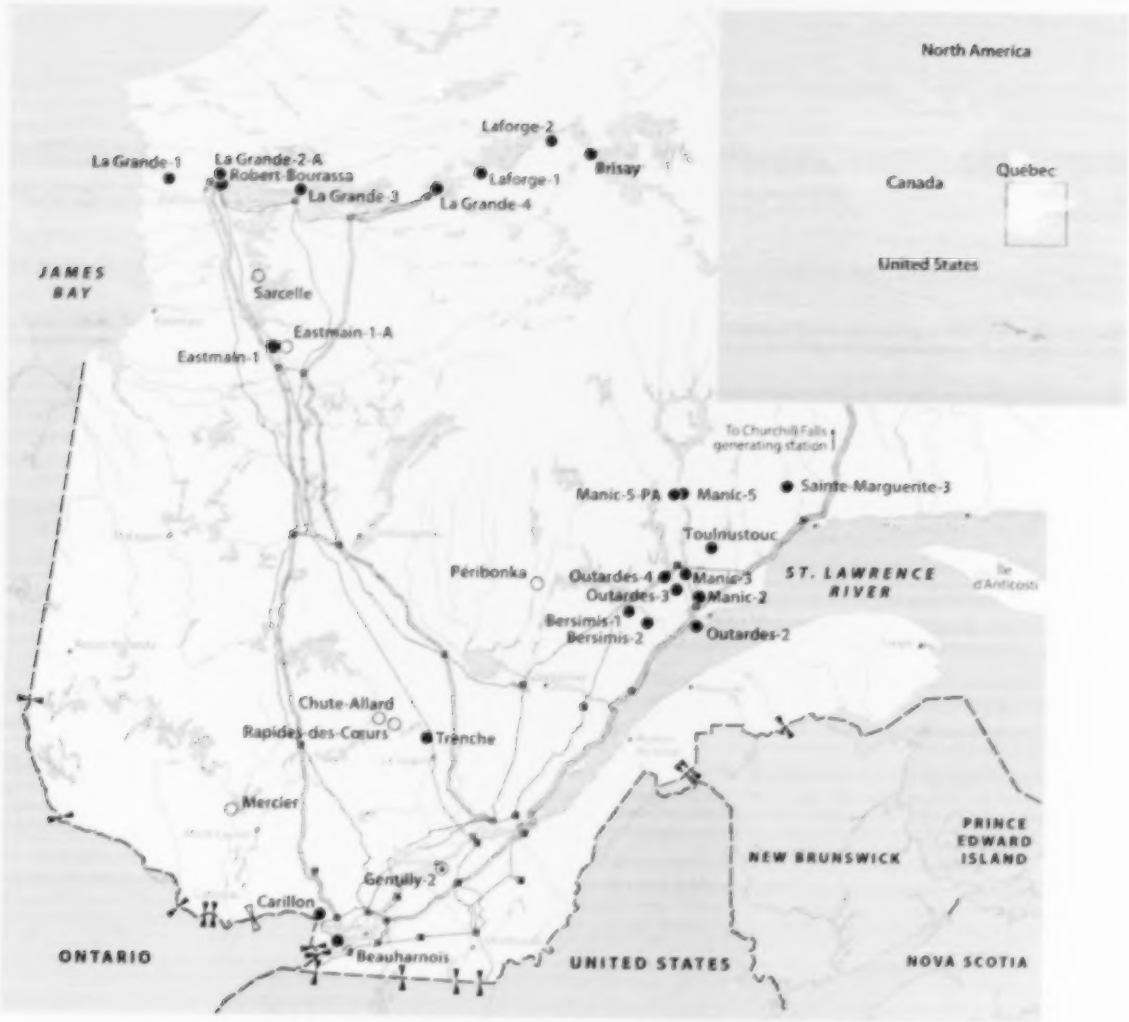
Some figures

- 4,358 employees
- Governance, finance, procurement, building services, health and safety, information systems management, communications, public and community relations, etc.

Sustainability highlights

- Go Green certification was obtained for our head office building.
- We made a commitment to use only paper containing 100% recycled fibre.
- Self-service bicycles were made available to employees, and we offered incentives for the use of public transit and carpooling as part of the *allégo* initiative.
- Donations and sponsorships totaling $23 million were contributed to 1,440 organizations and activities.
- Over 15,000 children and teens participated in our presentations and other informative activities on the environmental aspects of energy in Québec.
- 92% of all goods and services were procured in Québec at a total cost of $2.5 billion.
- $156 million in contracts or procurement of goods and services went to Aboriginal organizations, businesses and self-employed individuals.

Major Hydro-Québec Facilities



Generating Facilities Connected to the Grid – 2006

Source	Number	MW
Hydro	54	32,951
Nuclear	1	675
Thermal	4	1,541
Wind	1	2
Total	**60**	**35,169**

Power generated by Hydro-Québec – 2006 (GWh)

Legend

- Generating station rated 300 MW or more
- Generating station under construction
- Nuclear generating station
- 735-kV substation
- 735-kV line
- 450-kV direct-current line
- Interconnection
- Planned interconnection

"Québec long ago opted to use water, a clean, renewable energy source, to meet its electricity needs. Long-term thinking is therefore an integral part of our history and our culture. The times may have changed, but the goal remains the same: to work with communities to offer clean energy with the least impact on the environment."

Marie-José Nadeau, Executive Vice President, Corporate Affairs and Secretary General, Hydro-Québec

A Continuing Commitment to Sustainable Development

Bolstering our commitment

Hydro-Québec's commitment to the environment and sustainability dates back many years, as demonstrated by its first environmental impact studies and its adherence to the principle of sustainable development. Today, this commitment is reflected in the objectives of the *Strategic Plan 2006–2010* and in the daily actions of employees who are increasingly well trained and concerned about the environment.

As part of our ongoing effort to integrate the different aspects of sustainability throughout the company, we began working to develop an action plan in line with the Québec *Sustainable Development Act* adopted in 2006. We also incorporated the sustainability concept into our employee training and awareness activities.

Working with our partners

Hydro-Québec maintains continuing relations with representatives of organizations involved in or affected by its projects and activities, governments and municipal authorities, economic associations, Aboriginal and cultural communities, non-governmental organizations, businesses, investors and others. Many different ways of working with these groups exist, depending on the need.

Collaborative Mechanisms

Partners	1	2	3	4	5	6	7	8	9	10	11	12	13
General public	●	●						●	●			●	●
Communities	●	●	●	●	●			●	●	●	●	●	●
Aboriginal communities	●	●	●	●	●			●		●	●		●
Cultural communities								●			●		●
Employees	●		●			●	●					●	
Suppliers	●								●	●			
Governments	●		●	●	●						●		
Investors				●					●	●	●		
Media				●				●	●				
Non-governmental organizations	●	●	●		●					●	●		●
Customers		●	●	●		●		●	●	●		●	
Educational institutions			●		●				●	●	●		●

Examples

1 Standing liaison committees with municipal associations and the agricultural producers' union (Union des producteurs agricoles [UPA])
Committees to maximize regional economic spinoffs
Joint health and safety committees

2 Table of tables of customers' expectations
Information and consultation sessions in connection with projects

3 Integrated enhancement program
Aboriginal participation in our activities
Training in areas of strategic interest for Hydro-Québec

4 Community and government relations
Relations with Aboriginal communities
Media relations
Investor relations

5 Monitoring of science watches
Participation in industry associations such as CEATI

6 Handling of requests, complaints and claims
Recourse in cases of harassment

7 Hydro-Presse magazine
Specialized bulletins
Intranet

8 HydroContact newsletter
Call-in line (1 800 363-7443)

9 Municipal portal
Section reserved for teachers and young people
Section reserved for customers

10 Social economy enterprises
Consumer associations for low-income customers

11 Regional administrative conferences
Economic commissions
Chambers of commerce

12 Public and customer satisfaction
Sociocultural community expectations
Employee satisfaction

13 Donations and sponsorships
Support for universities and scholarships

Moving ahead with our business partners

Hydro-Québec works with key players in R&D and with companies searching for innovative ways to optimize their energy efficiency. It collaborated on a project with CANMET and the Société de recherche et développement minier (SOREDEM), for example, that led to the development of software to improve the energy performance of ore-hoisting equipment, generating estimated energy savings of 0.52 GWh/year for software user Agnico-Eagle.

Promoting electric-powered land transportation

TM4, our joint venture with the Groupe Industriel Marcel Dassault, plays a leading role in land transportation with its development of a parallel hybrid system for heavy vehicles.

Under a program supported by the French government, TM4 delivered 47 prototypes of electric drivetrains to the Société des Véhicules Électriques (SVE) to equip vehicles being tested by various organizations in France and by other users, including Hydro-Québec. In addition, it developed a motor-wheel propulsion system for Citroën, which has built it into its C-Métisse concept car.

As a result of collaboration between SVE and TM4, Hydro-Québec introduced its first Cleanova II to its fleet in September 2006. Two more Cleanova IIs and two Cleanova IIIs will soon be added.

Promoting business networking

Networking and cooperation are other business strategies favored by Hydro-Québec. Examples in 2006 include:

- Rendez-vous au 33e parallèle project: We took part in setting up and leading a multi-industry working group on R&D and applications in intelligent textiles.
- Advanced Materials Crossroads 2006: In addition to Hydro-Québec, partners involved in organizing and funding this international event included the Québec Materials Network, Développement économique, Innovation et Exportation Québec, the National Research Council of Canada and Industry Canada.

Sharing our know-how

Our exchanges with national and international partners are intended primarily to gain recognition for the environmental and social benefits of hydroelectric generation, as well as to share our extensive expertise.

Promoting hydroelectricity

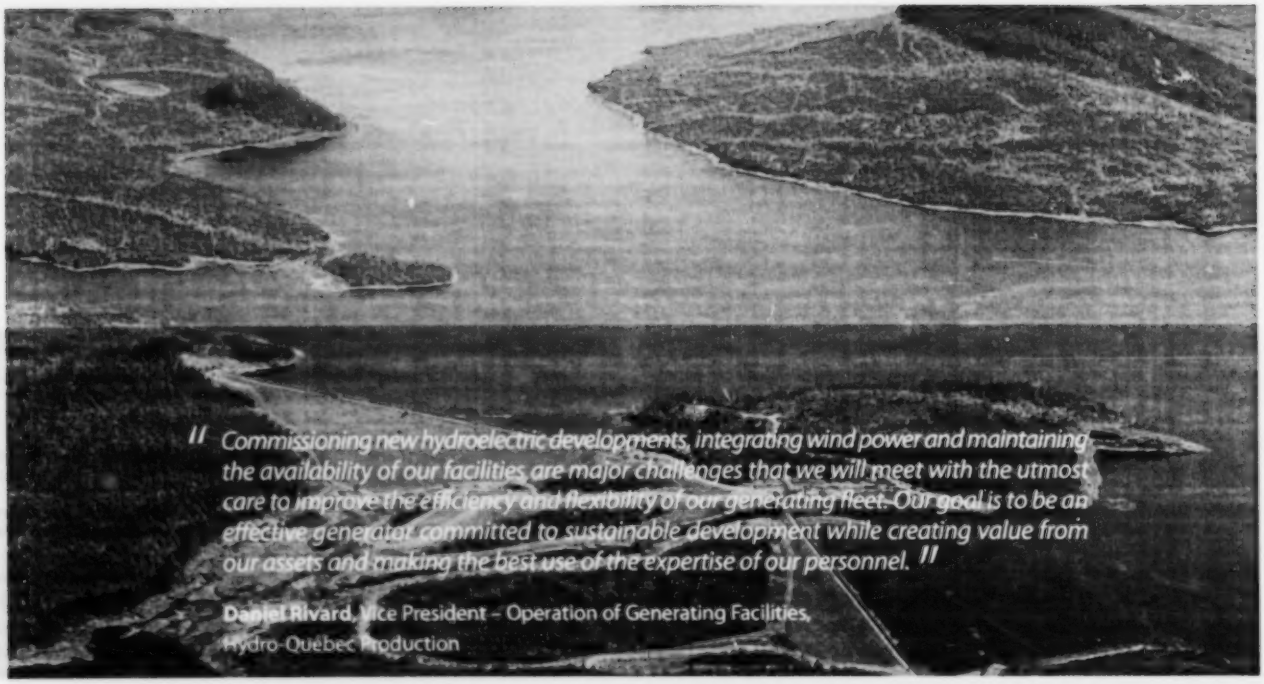
Among our contributions in 2006:

- International Hydropower Association: We acted as Vice Chair of the Board of Directors and the Sustainability Committee, and participated in the activities of the working groups on greenhouse gases and corporate social responsibility.
- eR: We signed the policy statement on Global Energy Issues, conducted a study on the financing of a minihydro project in Madagascar, and were active on the Project Committee and the Policy Committee.
- World Energy Council: We sit on the Board of Directors, chair the Communications and Outreach Committee, and will host and co-organize the 21st World Energy Congress to be held in Montréal in 2010.

Pooling our expertise

Initiatives in 2006:

- International Council on Large Electric Systems (CIGRÉ): We hosted the CIGRÉ Canada Conference on Power Systems, which focused on the challenges of integrating wind power into existing grids, and helped produce a guide on magnetic fields.
- We joined with two other partners—Mouvement Desjardins and Bell Canada—to launch a round table of corporate leaders in sustainable development. The goal: to bring together Québec companies, of all sizes, that are interested in sharing their experience in integrating the principle of sustainability into their organizations and activities.
- We contributed in different ways to international studies, exchanges of expertise and training in such countries as Guinea and Togo (environmental assessment training), Costa Rica (management tools for power system simulation) and Peru (energy efficiency feasibility study).


" Commissioning new hydroelectric developments, integrating wind power and maintaining the availability of our facilities are major challenges that we will meet with the utmost care to improve the efficiency and flexibility of our generating fleet. Our goal is to be an effective generator committed to sustainable development while creating value from our assets and making the best use of the expertise of our personnel. "
Daniel Rivard, Vice President – Operation of Generating Facilities, Hydro-Québec Production

Toulnustouc hydropower development.

Our Choice: Green Energies

Guaranteeing a reliable supply for growing energy needs

According to the forecasts in our *Strategic Plan 2006–2010*, electricity sales in Québec should reach 182.4 TWh in 2014—an increase of 13.2 TWh from 2005. In 2006, these sales totaled 167.3 TWh. To meet domestic electricity needs, Hydro-Québec Distribution has access to an annual heritage pool of 165 TWh, at a price set by law. Above this volume, the company can source through supply contracts based mostly on renewables.

97% of our power is generated from water.

Noteworthy in 2006

- Integrating the Eastmain-1 development into the grid added 480 MW to our generating capacity (Northern Québec region).

Other sources of supply:

- We took delivery of the first block of wind power resulting from the 2003 call for tenders. Since November, Baie-des-Sables wind farm has supplied us with close to 60 GWh of energy (Lower St. Lawrence region).
- The Bowater Canadian Forest Products forest biomass power plant, which started up in April, has supplied more than 100 GWh (Outaouais region).

Building projects that fit in

Development of Québec's hydroelectric potential progressed at a steady pace during the year. All our projects meet the three basic conditions we have set: they must be profitable, environmentally acceptable, and well received by the local community.

Commissioned

Eastmain-1 development

Project description

- Cost: $2.3 billion
- Location: Northern Québec
- Construction: 2002–2006
- Installed capacity: 480 MW
- Expected annual output: 2.7 TWh

Highlights

- Reservoir impoundment began in November 2005 and ended in early May 2006.
- The powerhouse officially started up on August 27, several months ahead of schedule.
- Full commissioning was in December.

Socioeconomic spinoffs

- Project expenses totaled $193 million, including $28 million in the regions affected.
- An average of 795 jobs were sustained over the year, including 257 in the region and 85 for the Cree communities.

Environmental measures

- A lake sturgeon spawning ground was built at the mouth of the Rivière à l'Eau Claire.
- Eastmain 1 reservoir and the Eastmain River were stocked with nearly 80,000 sturgeon fry and juveniles.
- A bay was closed off with dikes and enhanced through the development of waterfowl nesting areas, spawning grounds, a fish pass and shelters for small wildlife.
- A boat ramp was installed for Cree users and a weir was built downstream from the dam to maintain the water level.

Under construction

Eastmain-1-A/Sarcelle/Rupert

Project description

- Cost: $5 billion
- Location: Northern Québec
- Construction: 2007–2012
- Installed capacity: 893 MW
- Expected annual output: 8.5 TWh

Highlights

- In February 2002, the *Boumhounan Agreement* was signed with the Cree communities affected by the project in order to define their rights and benefits as well as the measures to be taken in their favor.
- An environmental impact statement was filed with the authorities at the end of 2004.
- In 2005, we reached a partnering arrangement with the Municipality of Baie-James designed to promote projects of a social, environmental or economic nature within the municipality.
- Public environmental hearings took place from March to June 2006.
- Government approvals were issued at the end of 2006.
- Work began on January 11, 2007, on the project of the decade in Québec.

Socioeconomic spinoffs

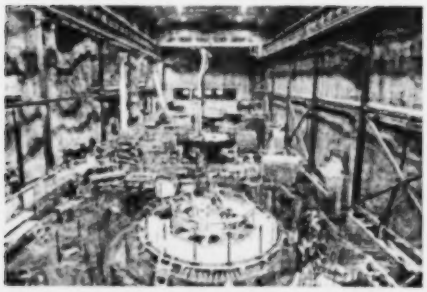
- Economic spinoffs of nearly $3 billion, including $123 million for the Crees and $126 million for residents of the Municipality of Baie-James.

Environmental measures

- Numerous environmental protection measures will be implemented during construction, and environmental follow-up studies will be conducted during and after construction.

Under construction

Péribonka development



Project description

- Cost: $1.4 billion
- Location: Saguenay–Lac-Saint-Jean
- Construction: 2004–2008
- Installed capacity: 385 MW
- Expected annual output: 2.2 TWh

Highlights

- We completed the complex task of pouring a cutoff wall, 312 m long and up to 115 m deep, beneath the future dam.
- Work began on concreting the spillway and installing the generating units.

Socioeconomic spinoffs

- Expenses totaled $405 million, including $142 million in the region.
- An average of 1,052 jobs were sustained over the year, including 863 in the region and 74 for Aboriginal communities.

Environmental measures

- A borrow pit was turned into several dozen hectares of wetlands for waterfowl through the creation of small bays, islands and jagged banks, and the planting of aquatic and land vegetation.
- A circle of land was cleared around the future reservoir and an osprey platform was built.
- Lake trout fertilized in Manouane reservoir were removed, transferred to a hatchery and raised with a view to stocking the future reservoir in 2007.

Chute-Allard and Rapides-des-Cœurs developments

Project description

- Cost: $0.7 billion
- Location: Mauricie
- Construction: 2005–2008
- Installed capacity: 139 MW
- Expected annual output: 0.9 TWh

Highlights

- Excavation of the two powerhouses and of the tailraces, intake and spillways was completed.
- Concreting began on the powerhouses, intake and penstocks.

Socioeconomic spinoffs

- Expenses totaled $254 million, including $68 million in the region.
- An average of 823 jobs were sustained over the year, including 470 in the region and 73 for Aboriginal communities.

Environmental measures

- Monitoring of the quality of groundwater and surface water around the in-trench waste disposal site began, and will continue for another 10 years or so.
- Archaeological digs at 15 prehistoric sites uncovered 26,000 artifacts, including 313 stone tools.
- More than 10 km of former river channels were excavated, creating nearly 8 hectares of shallow stretches and improving 78 hectares of wetlands altogether.

Under study

Romaine complex

Project description

- Cost: estimated at $7 billion
- Location: North Shore
- Installed capacity: 1,550 MW
- Expected annual output: 7.7 TWh (four powerhouses)

Highlights

- Draft design studies begun in 2004 continued, providing knowledge and understanding of the host environment and helping to define the environmental impacts, mitigation measures, compliance and follow-up programs, etc.
- Information and discussion panels were held for local communities.
- Workshops on the potential impacts brought together government stakeholders concerned by the project study.

Under construction

161-kV Péribonka–Simard line

Project description and highlights

- Cost: $185 million
- Location: Saguenay–Lac-Saint-Jean
- Construction: 2006–2008
- Length: 128 km
- Expenses totaled $49 million in 2006.
- An average of 189 jobs were sustained over the year.
- To protect nearby blueberry fields, mitigation measures related to the choice of tower types and construction season, for example, were applied.
- Rare plants along the Shipshaw River were protected through limits imposed on clearing and other measures.

Outaouais substation

Project description and highlights

- Cost: $363 million
- Location: Outaouais
- Construction: 2006–2009
- 315/230-kV converter station
- 1250-MW interconnection with Ontario
- Québec and Ontario government approvals were obtained in the latter half of 2006.
- Groundbreaking in November 2006.

Net Electricity Generated and Purchased by Hydro-Québec (GWh)

	2003	2004	2005	2006
Hydropower generated	146,913	140,353	149,119	145,730
Hydropower purchased	31,995	33,684	32,463	34,912
Wind power purchased	168	185	413	476
Biomass and waste reclamation power purchased	1,477	1,480	1,400	1,303
Other	23	20	37	20
Total renewables	**180,556**	**175,704**	**183,399**	**182,423**
Total energy generated	152,375	146,821	154,033	150,552
Total energy purchased	39,466	41,448	38,831	43,728
Total energy generated and purchased	**191,841**	**188,269**	**192,862**	**194,280**
Renewables/total energy generated and purchased (%)	**94**	**93**	**95**	**94**

Note: The output from our generating fleet and the corresponding energy purchases vary from year to year depending on electricity demand, availability of facilities during maintenance or refurbishment programs, and rainy conditions.

Meeting the challenges of wind power

Integrating wind output, which fluctuates hourly with the winds, into a major transmission system without compromising service quality poses a considerable challenge. This is especially true since, between now and 2015, nearly 4,000 MW of wind power—equivalent to about 10% of our total installed capacity—will be brought onto the grid. To meet this challenge, we must reconfigure some of our transmission and distribution equipment, develop effective technological interfaces, and build expertise in short-term wind and precipitation forecasting.

Promoting regional spinoffs and harmonious development

By committing to purchase large blocks of wind power from independent producers, Hydro-Québec Distribution is supporting the growth of a new industry in Québec. For this reason, the tender call issued in 2005 for 2,000 MW contained some specific provisions:

- A minimum of 60% of the total costs must be committed in Québec.
- At least 30% of the cost of the wind turbines must be spent in the regional county municipality of Matane and the administrative region composed of the Gaspé Peninsula and the Magdalen Islands.
- Preference will be given to projects that help develop local and Aboriginal communities and encourage their participation.

Hydro-Québec is also engaged in discussions regarding other measures that project proponents could apply to optimize spinoffs in the host communities and ensure harmonious integration of the projects.

Noteworthy in 2006

- **A $10-million donation to McGill University, payable over 10 years, was announced. Just under half of this funding is earmarked for research on the integration of wind power and hydroelectricity, and on the management of new energy sources used for customer on-site generation.**
- **A $1-million contribution to the Université du Québec à Rimouski, payable over eight years, will be used to develop and promote a made-in-Québec model for integrating wind farms harmoniously into the environment.**

Encouraging customer generation

In July, Hydro-Québec introduced a rate option known as net metering, which allows customer-generators to feed their surpluses into the grid for credit.

Upcoming wind projects – 2006 to 2012 (first call for tenders)

Major spinoffs from wind power purchases

In May 2003, Hydro-Québec issued its first tender call for 1,000 MW of wind power. The contracts were awarded in October 2004.

The resulting projects represent capital outlays of $1.5 billion by the proponents, not including transmission costs. Other projects will be added as a result of the tender call for 2,000 MW issued in 2005.

The Baie-des-Sables project (73 wind turbines) came on stream in 2006.

Location	Installed capacity (MW)
Baie-des-Sables	109.5
L'Anse-à-Valleau	100.5
Saint-Ulric–Saint-Léandre	150
Carleton	109.5
Les Méchins	150
Mont-Louis	100.5
Montagne Sèche	58.5
Gros-Morne, phase I	100.5
Gros-Morne, phase II	111

"Innovation is a corporate asset. With the technical and financial support offered by Hydro-Québec under its Industrial Analysis and Demonstration Program, we kept up our efforts to reach our energy conservation target of 4% per year. Our new water cooling process, called Novanergy, will enable us to achieve annual energy savings of about 6%—around 5,000 MWh—at our Bromont plant."

Peter Bisset, Site Operations Manager – Bromont plant, IBM Canada
IBM Canada is a member of Hydro-Québec's Energy Savers' Circle

Hydro-Québec is present at many exhibitions for the general public.

Energy Efficiency: Encouraging Results

Being energy wise

Under its Energy Efficiency Plan, Hydro-Québec plans to invest $1.3 billion to achieve energy savings of 4.7 TWh by 2010 and 8 TWh by 2015. To reach this goal, we have developed 13 programs: six for residential customers; three for commercial, institutional, and small- and medium-power industrial customers; and four for large-power customers. Customer response has been excellent.

One of the initiatives we have put forward is the Energy Savers' Circle, made up of large-power customers recognized for their leadership and outstanding performance in the field of energy efficiency. To qualify, customers must cut their plants' electricity consumption by at least 5% or save at least 50 GWh per year by participating in our energy conservation programs. They must also have adopted an energy efficiency policy and put someone in charge of energy efficiency.

Energy Efficiency Plan Results (GWh)

	Objective			Result		
	2004	2005	2006	2004	2005	2006
Energy savings	189	321	523	268	456	643
Residential customers	91	138	257	224	251	289
Business customers	73	104	126	18	57	157
Large-power customers	25	79	140	25	148	197

The steps taken as part of our efforts to optimize the energy efficiency of our buildings, including our administrative building on Jarry Street in Montréal, meant savings of over 10 GWh in 2006.

Noteworthy in 2006

- Six large-power customers were admitted to the Energy Savers' Circle: Alcan, Waterville TG, École Polytechnique de Montréal, Mittal Canada Lachine, the Société Immobilière du Québec and IBM Canada. They achieved 2006 energy savings of 71.3 GWh in all.
- Five pilot projects for the recovery of energy-hungry refrigerators and freezers were launched. These projects should yield over 5 GWh in total annual energy savings and lead to the recovery and recycling of approximately 6,700 appliances.
- Under the AVENUES (Marketplace Testing for Energy-Efficient Technologies) program, we put out a new request for proposals, this one for solar pool heaters. Solar technology could save pool owners between $100 and $1,000—or 1,500 to 15,000 kWh—per year, depending on pool size and usage factors.
- An agreement was signed with the Coop Fédérée to help farm producers and agri-food businesses improve their energy efficiency. This customer category accounts for 1.5 TWh in annual consumption. Under the agreement, we will set up a research fund for the development and adaptation of electrotechnologies for the farming and agri-food industries.

Getting youngsters involved

Educational kits were developed in cooperation with the Montréal Science Centre to make young people aware of the importance of energy conservation. This tool is used by the Centre for school groups, and will be offered in schools starting in 2007.

As well, during the 2005–2006 school year, 70 schools participated in the *Bright Ideal* program. Under this program, students sell ENERGY STAR® qualified compact fluorescent light bulbs to fund their extracurricular activities and, in so doing, make a direct contribution to reducing energy consumption. About 50,000 light bulbs were sold as part of this initiative in 2006.

® ENERGY STAR is an official trademark used under licence.

Our energy technologies laboratory lent its support to Saint-Joseph School, in Shawinigan, for a project to introduce students to energy conservation and sustainable development. As a result, the school earned an honorable mention from the Québec federation of school boards in the Pedagogical Innovation category of its awards of excellence.

Some Examples of Energy Conservation Programs for Residential Customers

	2004 Result	2005 Result	2006 Objective	2006 Result
Electronic thermostats (number)	468,525	761,938	434,830	707,480
Home Diagnostic questionnaires (number)	312,375	263,978	250,000	227,319
Pool filter timers (number)	14,725	15,841	14,000	37,054

" As a result of research conducted at Hydro-Québec's energy technologies laboratory, we are now using a new induction-screw drying system at the Niobec mine, in the Saguenay region. By switching from fossil fuels, we avoid 960 tonnes of annual GHG emissions at this extraction site alone. Applying this new technology at other sites, and at other mining or metallurgical operations, will mean even further reductions. "
Yoland Dubé, General Manager, Gestion JAMGOLD – Québec – Niobec Division

Machine shop at our energy technologies laboratory in Shawinigan.

Technological Innovation and Research

Meeting industry needs, and our own

Hydro-Québec carries out numerous innovation and research projects related to power generation, transmission and distribution, and energy efficiency. We allocated $98 million to our research institute in 2006.

Over the years, our researchers have developed robotic tools adapted to hostile and difficult-to-access environments, such as RODAV, a steerable robot delivered in 2006 and used for steam de-icing of transmission equipment. Our aim in this is to improve our efficiency and safeguard worker health and safety.

Partnering with manufacturers

Some R&D projects are joint initiatives with other research centres or with industrial equipment manufacturers. This means that the benefits of the resulting innovations are more widespread.

We partnered on projects such as:

- Research on advanced refrigeration technology, heat waste recovery and low-energy-intensity industrial processes (Université de Sherbrooke)
- Establishment of an R&D infrastructure for work on hybrid vehicles by university researchers (Québec Advanced Transportation Institute)
- Evaluation of the efficiency of water-oil separators for treating turbine wash water (Centre de recherche industrielle du Québec)
- Power generation from farm biogas (pilot project with Bio-Terre)

Relying on renewables

Because of its growth prospects, wind power is the energy option that is mobilizing the greatest research efforts in Québec in the short term. We have entered into research partnerships with various universities for this purpose. New interfaces ensuring efficient management of power flows on the transmission system are among the aspects that must be developed.

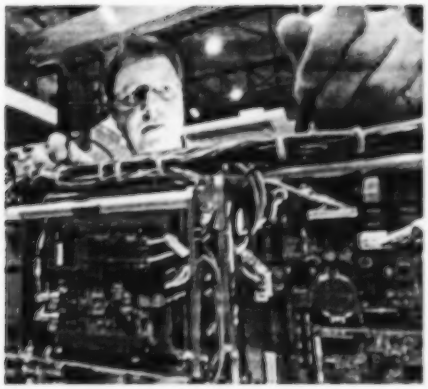
Hydro-Québec's solar power efforts are focused on optimum building design and management. We are playing an active role in the Solar Buildings Research Network, made up of 10 universities, Natural Resources Canada, the Canada Mortgage and Housing Corporation and the Alberta Research Council, and have pledged $325,000 in financial support for 2006–2010.

In addition, geothermal energy is an increasing focus of research activities. It is especially relevant to the commercial and institutional sectors, because of the greater savings that may be achieved there. This research will likely be extended to the residential sector in the coming years.

Hydro-Québec is working with the Institut de technologie agroalimentaire and the provincial Department of Agriculture, Fisheries and Food to design a heating system for hothouses that incorporates geothermal energy, solar power and thermal storage, along with efficient lighting. We also took part in the International Energy Agency's ANNEX 29 project to draw up design criteria for large geothermal systems and develop more applications for this energy source.

Tapping the potential of remote management

Technology for remote management of facilities throughout the province is highly promising and will certainly continue to evolve. It will also undoubtedly be extended to other uses, such as interaction with customers and demand-side management. With this in mind, we put together a portfolio of remote-management innovation projects that are set to commence in 2007.



Innovation projects generate substantial financial spinoffs for the company. Projects carried out since 2001 have had an estimated impact of $147 million on net income, including $32 million for 2006 alone, when we were involved in about a hundred such initiatives.

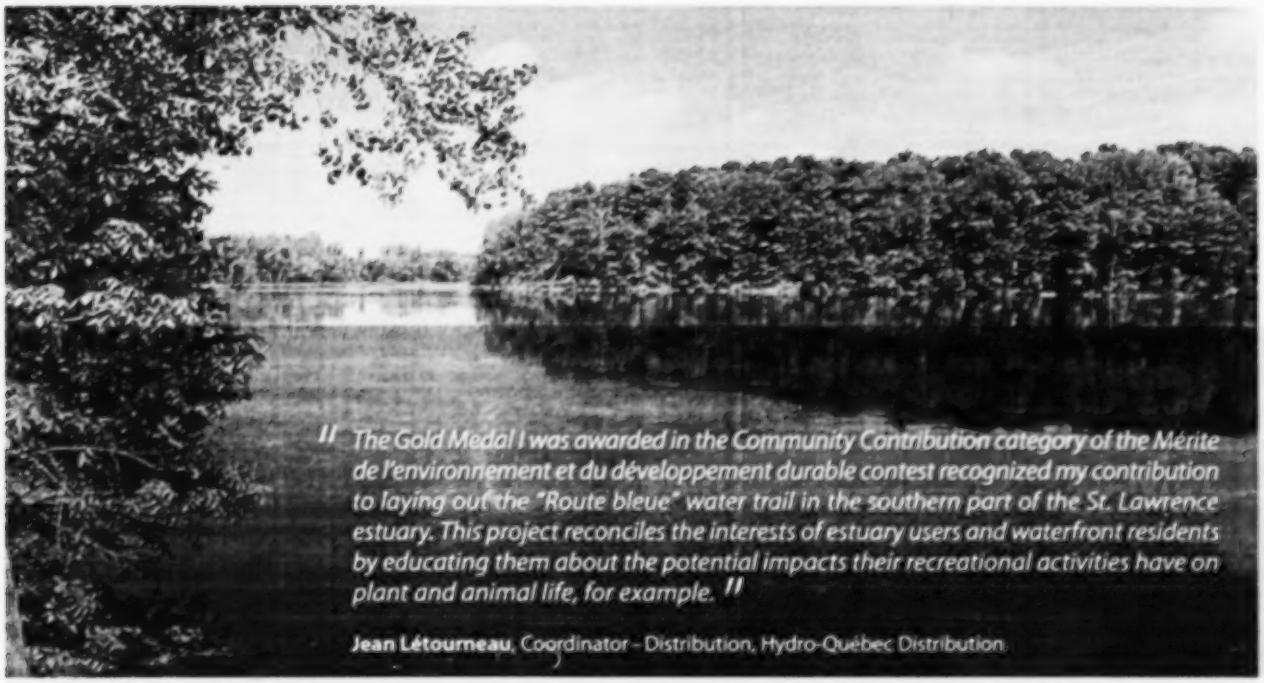
Noteworthy in 2006

- We awarded Concordia University $8 million over 10 years, $4.8 million of which will go to support its research in optimum building design and management (Montréal region).
- We allocated $300,000 to the Université du Québec à Trois-Rivières institute of hydrogen research to enable it to carry on its research program that is looking into the modeling of fuel cell operation and other uses of hydrogen. This brings the amount given to UQTR for 2003–2012 to $3 million (Mauricie region).

Eastmain-1 reservoir, dam and spillway.

Ouranos

The effect of climate change on the availability of water is a central concern for Hydro-Québec in terms of risk management, since we rely on this resource to generate 97% of our output. That is why we have supported the Ouranos research consortium since 2002. We granted the group $1.2 million in 2006 to support its research.



"The Gold Medal I was awarded in the Community Contribution category of the Mérite de l'environnement et du développement durable contest recognized my contribution to laying out the "Route bleue" water trail in the southern part of the St. Lawrence estuary. This project reconciles the interests of estuary users and waterfront residents by educating them about the potential impacts their recreational activities have on plant and animal life, for example."

Jean Létourneau, Coordinator – Distribution, Hydro-Québec Distribution

Environmental Protection

Making the environment part of our business

Ever since the introduction of environmental management systems, which provide a framework for employees whose activities have an impact on the environment, the company's different units have developed environmental provisions for goods and services contracts. These clauses establish the requirements which suppliers must meet in relation to various environmental aspects of their work: residual materials, atmospheric emissions, spills, and so on.

In 2006, we reviewed the environmental clauses in our generation and transmission contracts. In some cases, we also checked that these clauses were being applied properly.

In addition, we drew up a declaration of environmental compliance for some service contracts, as a way of obtaining a commitment from suppliers.

Managing contaminated sites

We carry out site characterization and rehabilitation every year. In 2006 alone, we invested more than $3.8 million in this activity. More than half this total was devoted to telecommunications sites under a program developed in conjunction with government authorities to remove and replace equipment containing petroleum products. This equipment is used to supply fuel to generators in remote locations.

Some of the sites in Northern Québec that underwent rehabilitation in 2006 are as follows:

- Sakami telecommunications site, with 1,684 tonnes of contaminated soil treated at a cost of nearly $800,000.
- The former thermal power plant on Fort-George Island and the Chisasibi area at La Grande-3, where soil was treated at a cost of over $640,000.
- Nemiscau substation, with 3,200 tonnes of contaminated soil excavated, transported and then treated, at a cost of about $865,000.

Adhering to the *Go Green* program

In 2006, Hydro-Québec signed up for BOMA Québec's *Go Green* program, which awards certification to buildings that meet specific criteria of environmental excellence. The program covers 10 aspects of building management, including energy and water use, recycling, use of environment-friendly products, management of hazardous materials, and indoor air quality.

Our head office was our first building to receive *Go Green* certification, in November 2006. The company's goal is to obtain this certification for another 13 of its buildings by December 2007.

Ensuring water quality

We conduct studies and take action to minimize the waste produced by our facilities and to preserve water quality. Among other initiatives during the year:

- We evaluated new technologies for the treatment of runoff from treated-pole storage yards.
- We tested the replacement of traditional solvents with soaps that have less environmental impact and improve the efficacy of water-oil separators at vehicle repair shops.
- At Manic-5-PA generating station, we introduced a new wastewater treatment system (North Shore region).

Using resources responsibly

Better management of residual materials, including paper and electrical equipment, and the steps we take to reduce the ecological footprint of our activities are key factors in the sustainable use of natural resources.

Reducing our consumption of resources

Hydro-Québec buys nearly 650 tonnes of paper every year for its printing and copying needs. In 2006, we opted for 100% post-consumer recycled paper processed without chlorine. This will allow us to help preserve 11,000 trees, while also saving 20 million litres of water per year. We have thus become one of the first major Canadian companies to make this commitment to protecting the forest. This environmentally friendly paper will be used for all our printing and copying needs starting in 2007.

We also promote online billing, which cuts the number of bills printed and, consequently, the volume of mail from customers. More than 1.2 million mailings were avoided in 2006, a nearly 15% increase over the previous year.

Managing our administrative buildings demands a large amount of drinking water. At our energy technologies laboratory in Shawinigan, we modernized the washrooms and modified or updated some of the laboratory equipment and HVAC systems. These changes led to a reduction of 40%—or about 250,000 litres per month—in drinking water consumption (Mauricie region).

Some Statistics on the Recovery, Reuse and Recycling of Our Residual Materials

	Recovery				
	2003	2004	2005	2006[a]	Notes on 2006 data
Power-line hardware (tonnes)	194	234	174	179	
Electrical equipment (tonnes)	4,637	4,892	5,755	5,301	The great majority is recycled.
Printer cartridges (units)	7,015	5,606	15,635	18,297	Internal reuse: 6% External reuse: 94%
Insulating oil - litres recovered - internal reuse (%)	4,666,729 95.3	5,381,056 96.6	4,508,498 89.9	4,448,375 94.5	Some regeneration deferred until 2007
Metal (tonnes)	8,971	8,340	8,740	7,801	
Wooden pallets (units)	7,216	6,833	n.d.	4,100	90% repaired and reused
Paper and cardboard (tonnes)	620	680	668	871	Rented buildings excluded
Binders (units)	6,605	n.a.	17,361	12,869	75% reused

a) Estimate.

A sustainable development centre in Montréal

"The President and Chief Executive Officer of Hydro-Québec, Thierry Vandal, was one of the first to believe in this project and to play a concrete role in it. The personal involvement of Marie-José Nadeau, Executive Vice President, Corporate Affairs and Secretary General, as chair of the corporate fundraising campaign will also give the project a strong boost. With their support, Équiterre and its partners are now in the process of building one of the most environment-friendly buildings in the world, a model for private citizens and companies alike."

Sidney Ribaux, General Coordinator, Équiterre

Sidney Ribaux and Thierry Vandal

Promoting reuse of materials

In 2006, 9,964 wood poles were removed from the power system and transported to collection sites for treatment; 4.3% of them were then returned to service as utility poles. Under an agreement with a telecommunications company, we have established a new procedure to optimize the reuse rate.

A program to recover printer cartridges and personal cell phones enables Hydro-Québec employees in Chicoutimi to contribute to the Moisson Saguenay food bank (Saguenay–Lac-Saint-Jean region).

As well, Hydro-Québec gave a positive response to 89 requests submitted by community organizations for donations of used office furniture worth a total of $35,760.

Handling residual materials properly

In 2006, Hydro-Québec introduced a program for recovering putrescible material at the Chicoutimi administrative centre cafeteria. This pilot project was a collaborative undertaking with the chair in environmental consulting at the Université du Québec à Chicoutimi, and was carried out in cooperation with the region's restaurant operators, a trucking company and a compost producer.

Under a framework agreement between the Municipality of Inukjuak, Kativik Regional Government and Hydro-Québec, we are making used oil from Inukjuak, Kuujjuaraapik and Umiujaq generating stations available, free of charge, to the village of Inukjuak to be reclaimed for energy purposes. The 125 barrels of used oil recovered every year heat municipal buildings in these remote communities (Northern Québec region).

Encouraging employees to recycle

In December, we launched a project to optimize paper and cardboard recovery, including glass, plastic and metal food containers, in our buildings. All employees are invited to adopt sound practices for managing residual materials in the workplace, beyond recycling paper. This initiative is a cooperative endeavor with Recyc-Québec as part of its *VISEZ juste!* program, and will help achieve the objectives of the Québec Residual Materials Management Policy, 1998–2008.

In 2006, close to 40 multimaterial recycling bins were installed in our head office and at our research institute. We plan to install more stations like this in over 80 of our buildings throughout Québec.

Protecting plants, animals and biodiversity

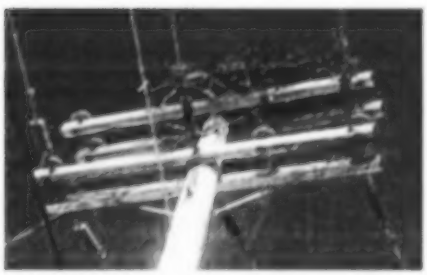
Plants and animals can be affected to varying degrees by Hydro-Québec's projects and operations. We conduct studies and research, restoration projects and other initiatives to protect species and biodiversity and minimize the impacts of our operations on host environments, which sometimes harbor threatened or vulnerable species.

Our studies on biodiversity in transmission-line rights-of-way (ROWs) continued in 2006. Here are the main conclusions:

- Many species of wildlife use the ROWs.
- Some bodies of water that form in our ROWs attract amphibians but may also result in habitat loss.
- They contain a wealth of plant and animal species, similar to or better than what is observed in adjacent forests.

We are participating in a program to track caribou movements with satellite data to learn more about their habits.

To protect the ospreys that nest atop our poles, new lower crossarms were installed to make operation secure without disturbing the nests.



Noteworthy in 2006

- Four spawning areas in the Manouane and Duhamel rivers were seeded with 4,000 salmon fry to support reproduction (Saguenay–Lac-Saint-Jean region).
- Some 78,500 eels migrated through the two fish passes at Beauharnois generating station in 2006, the most observed since the fish ladders were built. At Chambly dam, only 434 eels used the fish pass, compared to 2,177 in 2005: heavy flows in the Richelieu River interfered with access to the pass entrance, which explains the drop in usage (Montérégie region).
- *Hydro-Québec's Guide to Ornamental Trees and Shrubs* helps people choose the species most compatible with overhead utilities. Eleven thousand copies of the new edition have been distributed.
- An exhibition on the creation of a network of protected areas was inaugurated at the Centre éducatif forestier du lac Joannès, located south of the planned Vaudray and Joannès Lakes biodiversity reserve, in cooperation with the Association forestière de l'Abitibi-Témiscamingue (Abitibi-Témiscamingue region).

Commitments of the Fondation Hydro-Québec pour l'environnement

As a committed corporate citizen, Hydro-Québec created the Fondation Hydro-Québec pour l'environnement in 2000. The Foundation's objective is to support long-term protection of the environment. Since it was created, the Foundation has granted nearly $4 million to various organizations. In 2006, it supported 22 projects, including the following:

- Revitalization of the Rivière à Mars in the Saguenay region: this river was devastated by torrential rains in 1996. The project will recreate the necessary conditions for the return of the animal and plant species whose habitat was destroyed by the flash flooding (Saguenay–Lac-Saint-Jean region).
- Education of users of the western archipelago of Lake Saint-Pierre to protect the lake's shoreline. This lake was recognized by UNESCO as a biosphere reserve in 2000. It contains a diversity of plants and animals, including 27 threatened or vulnerable species (Mauricie region).

	2003	2004	2005	2006
Number of projects funded	10	15	20	22
Number of regions affected	5	9	13	12
Amount allocated ($ 000)	339	680	867	1,009

Vegetation management

Vegetation growth around our facilities can be detrimental to the safe operation and reliability of Hydro-Québec's grid. As a result, we need to control vegetation.

Only mechanical control is used for our distribution grid. For our transmission and generating facilities, we use integrated vegetation management, which means using the right control method in the right place at the right time, including rational, responsible use of herbicides.

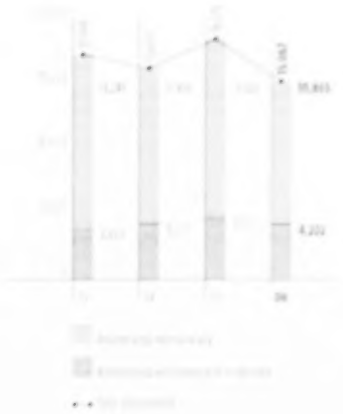
In 2006, we extended our environmental assessment policy to include generating facility projects. As a result, environmental assessments are now conducted prior to any vegetation control operations.

Noteworthy in 2006

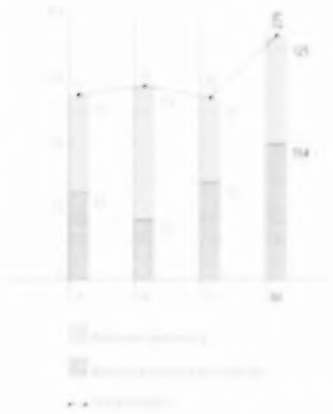
- Evaluation of the effectiveness and environmental performance of the various herbicides on the market will help us make the right environmental choices for controlling vegetation at our transmission substations.
- Studies and research projects are investigating the use of geotextiles and dolomitic limestone to prevent the growth of incompatible vegetation at transmission substations.
- Internal environmental assessments for 99% of the distribution lines affected by vegetation control operations involve cataloguing sensitive elements so that adequate and environmentally responsible measures can be implemented.

A new self-contained pneumatic pruner developed at Hydro-Québec's research institute improves tree pruning.

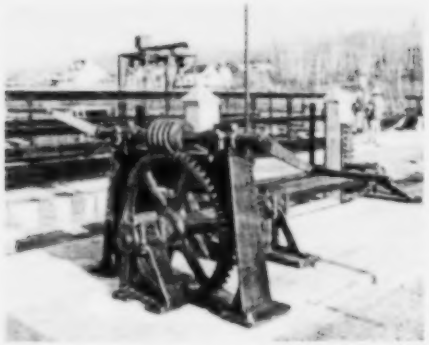
Vegetation control along transmission line rights-of-way (ha)



Vegetation control on dikes and dams (ha)



Integrating our facilities with the environment and protecting heritage



During rehabilitation of Lumsden dam, built in 1918, the old hoists were restored. A multifunctional crossing was also built for recreational activities like cycling and snowmobiling (Abitibi-Témiscamingue region).

Various approaches are used to integrate our facilities more harmoniously with their surroundings, thereby enhancing the quality of life in the host community. As part of our undergrounding programs, for example, 25% of our 61,810 new residential hookups were underground.

Hydro-Québec is also concerned about protecting the built and natural heritage. We make some of our sites available for community, recreational and tourist use, as long as operating requirements are met and public safety is not at risk.

Sometimes our facilities can be a source of nuisances for people living nearby: noise, occupation of large spaces, annoying lighting, and so on. We try to apply innovative solutions such as new equipment designs or better positioning. At Notre-Dame-du-Laus substation, new equipment was installed that substantially reduces noise (Laurentians region).

Archaeological digs continued in conjunction with the Cree Regional Authority. Traces of Aboriginal occupation over two thousand years old have been discovered at about 15 archaeological sites within the Rupert diversion bays (Northern Québec region).

Managing and protecting water bodies

Every year, we apply various means to protect the water bodies that we use in our business. For example, we endeavor to prevent or limit erosion of reservoir banks and to maintain water levels that are compatible with different types of use. Among the measures adopted in 2006 were:

- Consideration of sensitive elements for management of the reservoirs in the upper Ottawa River and Manic 1 and Manic 2 reservoirs to minimize the impacts of reservoir level management on users' activities (Outaouais and Northern Québec regions).
- Installation of bank protection structures along 730 metres of the Grande Rivière upstream of La Grande-1 generating station to control erosion caused by fluctuating water levels and soil instability (Northern Québec region).
- Modification of operating procedures at Outardes-2 generating station to minimize impacts during spawning season on smelt spawning grounds below the generating station, and at Toulnustouc and Sainte-Marguerite-3 generating stations to maintain the minimum ecological instream flow (North Shore region).

Cooperating with host communities

We maintain ongoing relations with the communities in which we operate to encourage responsible water management among users. For example, in 2006:

- Weekly information on anticipated water levels in the Grande Rivière below La Grande-1 generating station is given to the community of Chisasibi to enable residents to plan safe travel (Northern Québec region).
- Kitcisakik Algonquin fishing areas and camps that may be influenced by water-level fluctuations in Dozois reservoir and Grand Lac Victoria were inventoried (Abitibi-Témiscamingue region).
- A map showing canoeing conditions on the Manouane River was published to facilitate canoeing on the river; it was distributed to canoe-camping groups and local tourist organizations (Saguenay–Lac-Saint-Jean region).

Preserving air quality

Hydroelectricity accounts for 60% of the installed capacity in Canada; Hydro-Québec is the largest producer. Generating electricity from a renewable energy source contributes greatly to Quebec's excellent greenhouse gas (GHG) emissions record. According to 2003 statistics, the electricity industry represents only 1.7% of the GHG emissions in Quebec, compared to 37.4% for transportation and 31.1% for industry. [2]

Reducing atmospheric emissions across the continent

Our power exports help to reduce atmospheric emissions in Canada and the United States because they often replace electricity generated from polluting sources like coal. As a comparison, the electricity produced by Hydro-Québec in 2006 emitted 23 times less carbon dioxide (CO_2), 17 times less sulphur dioxide (SO_2) and 16 times less nitrogen oxide (NO_x) than the overall average for neighboring provinces and states.

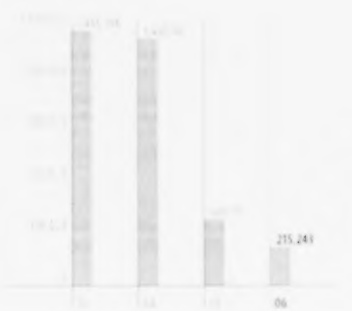
Hydro-Québec owns a fleet of over 8,500 vehicles. We have adopted a program to reduce GHG emissions from our fleet by 5% between 2006 and 2010; this is the equivalent of 2,500 tonnes of CO_2. Among the suggested solutions are changing drivers' habits and purchasing more fuel-efficient models. Of the light trucks replaced in 2006, 28% were replaced by more efficient vehicles for an emissions reduction of about 220 tonnes of CO_2.

Noteworthy in 2006

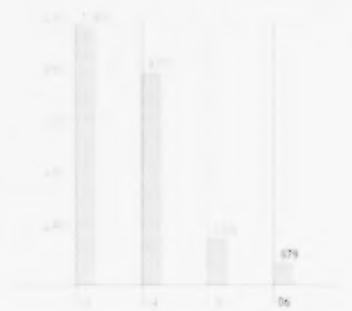
- An unprecedented study of net greenhouse gas emissions from Eastmain-1 reservoir continued, in cooperation with McGill University and the Université du Québec à Montréal. Greenhouse gases were measured before, during and after impoundment, above the reservoir and above the surrounding forest.
- Black spruce were planted in 115 ha of boreal forest to fulfill a commitment made with 25 partners during the United Nations Climate Change Conference: Montréal 2005. The goal was to offset 70 kilotonnes of CO_2, which is double the GHG emissions attributable to the travel of the 9,500 Conference attendees.
- As a member of the Hybrid Truck User Forum, we acquired the first hybrid bucket truck in Canada.

[2] Source: Inventaire québécois des émissions de gaz à effet de serre, MDDEP, July 2005.

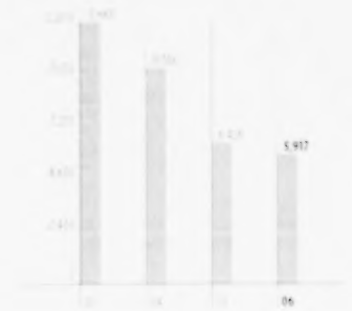
Atmospheric emissions of CO_2 (tonnes)

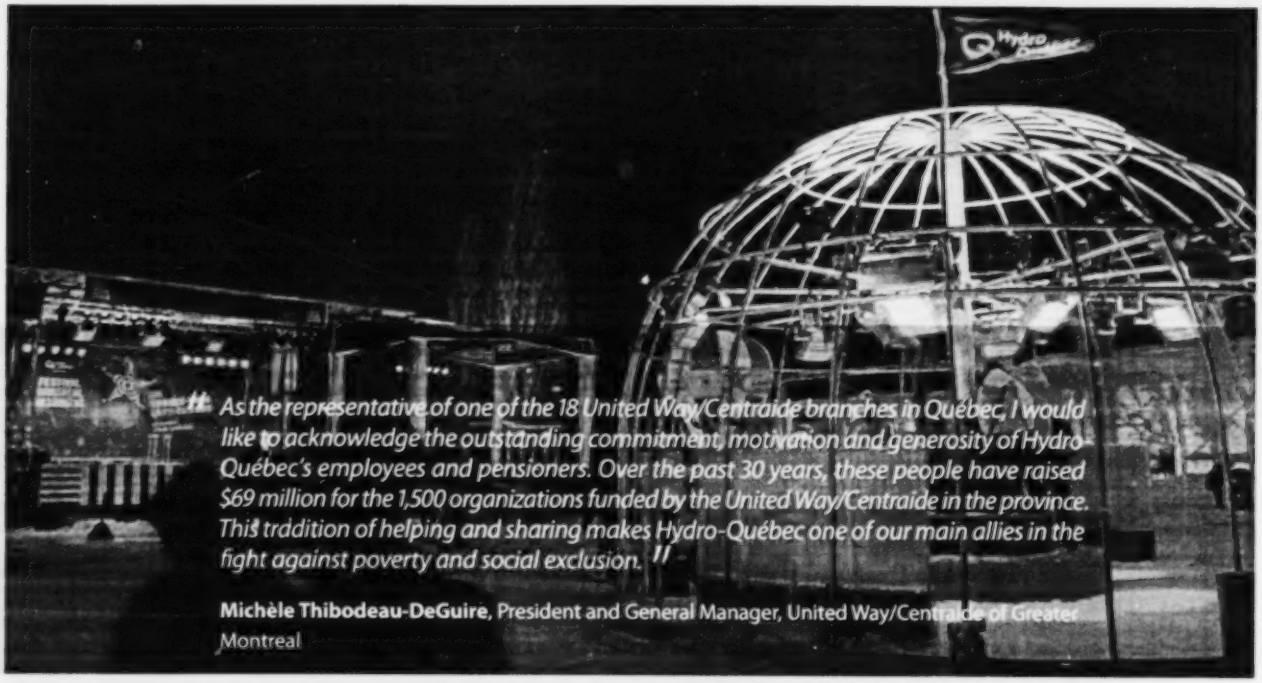


Atmospheric emissions of SO_2 (tonnes)



Atmospheric emissions of NO_x (tonnes)





"As the representative of one of the 18 United Way/Centraide branches in Québec, I would like to acknowledge the outstanding commitment, motivation and generosity of Hydro-Québec's employees and pensioners. Over the past 30 years, these people have raised $69 million for the 1,500 organizations funded by the United Way/Centraide in the province. This tradition of helping and sharing makes Hydro-Québec one of our main allies in the fight against poverty and social exclusion."

Michèle Thibodeau-DeGuire, President and General Manager, United Way/Centraide of Greater Montreal

Hydro-Québec participates in the Montréal High Lights Festival.

Social Commitment

Maintaining close ties with Aboriginal and other communities

Partnering with communities

Hydro-Québec's activities can sometimes generate concern with n the communities affected. Various ways are used to understand their needs better and jointly identify solutions.

Liaison committees with the municipal associations and the farm producers' union facilitate discussion and consensus-building on topics of common interest.

Noteworthy in 2006

- The municipal liaison committees filed a report on measures to adopt to meet municipalities' energy efficiency needs better.
- One of the achievements of the municipal liaison committees was the production of a guide to help municipalities draw up a civil security plan in case of a major blackout.
- A framework for optimizing economic spinoffs in Northern Québec was defined in conjunction with the Northern Development Ministers Forum.
- Seventeen agreements were signed, including one on development of a park along the banks of the Saint-Charles River.

Aboriginal communities

We maintain close ties with the First Nations communities near our jobsites and facilities. We contribute to their development by participating in joint-action committees and issue tables. Cooperation and other agreements are also signed with these communities.

One example is the Mashteuiatsh–Hydro-Québec joint committee, which deals with contract awards and which in 2006 discussed the substantial economic spinoffs from the Péribonka project (Saguenay–Lac-Saint-Jean region).

Sponsorships totaling $178,000 were granted to fund Aboriginal events like the First Nations Socioeconomic Forum in Mashteuiatsh.

Noteworthy in 2006

- $156 million was contributed to Aboriginal organizations, businesses and independent workers through contracts or the procurement of goods and services.
- The majority of the contracts for construction of the line between Nemiscau substation and the new Waskaganish substation were awarded to Cree businesses in accordance with the *Waskaganish Transmission Line Agreement* (Northern Québec region).
- Over $19 million in work, projects and programs was allocated to Cree communities in 2005 and 2006, in accordance with agreements signed with the James Bay Crees and Niskamoon Corporation.
- The Cree–Hydro-Québec implementation committee filed its first report on dam security in the James Bay region.
- Four $1,000 scholarships were awarded to college students from the communities of Kahnawake, Odanak and Wendake.

Preventing the effects of mercury

Since the early 1980s, Hydro-Québec has conducted extensive research on the effects of mercury released from flooded vegetation and soil during reservoir impoundment. Research has shown that the phenomenon is temporary and that, after 20 to 30 years, mercury levels in reservoirs are the same as in natural lakes.

The company also carefully monitors mercury levels in the flesh of fish in new reservoirs and cooperates in the production of consumption guides so that people can continue to safely enjoy the benefits of fish caught in reservoirs. The Web site put up in 2006, www.hydroquebec.com/sustainable-development/documentation/mercure.html, provides a great deal of information about mercury.

Contributing to social progress

At a special Hydro-Québec exhibit during the Fête des Neiges winter festival in Montréal, the public was invited to discover many ways to save energy.

Our contribution to social development is extensive and diversified. It reflects our commitment to support many organizations that, through their actions and projects, foster vitality in communities, enrich the quality of life and help people in need.

Many applications for support are sent to us—nearly 3,500 in 2006—and each one is reviewed. In all nearly $23 million was allocated in donations and sponsorships.

In the 2006 United Way/Centraide campaign, Hydro-Québec and its employees and pensioners donated a record total of $5.6 million.

We also fund a number of research chairs as part of our multi-year commitments to universities.

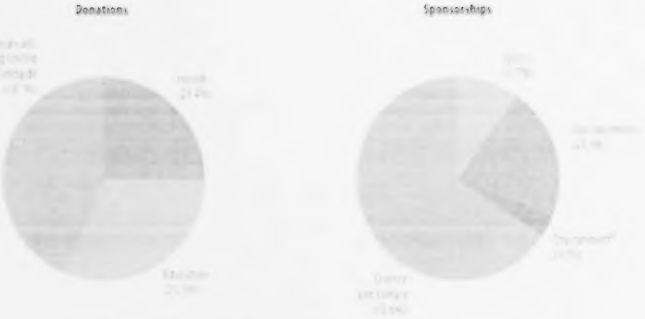
Some organizations and events supported in 2006

- Centre hospitalier universitaire de Sherbrooke
- Québec Breakfast Club
- Mondial des Cultures de Drummondville
- Fondation Jean Lapointe
- Festival des contes et récits de la francophonie, de Trois-Pistoles
- Centre hospitalier universitaire Sainte-Justine
- L'International de l'art vocal de Trois-Rivières
- Carnaval de Québec
- Fondation de l'Hôtel-Dieu de Saint-Jérôme
- Traversée internationale du lac Saint-Jean
- Projet de Réserve de la Biosphère Manicouagan-Uapishka
- Abitibi-Témiscamingue international film festival
- Tadoussac song festival
- Rendez-vous estival Le Gardeur
- Québec Foundation for Athletic Excellence
- Défi sportif challenge for athletes with disabilities
- Québec National Environment Exhibition at the Old Port of Montréal
- Festival classique des Hautes-Laurentides

Breakdown of donations and sponsorships

In 2006, Hydro-Québec donated nearly $6.3 million to at least 285 organizations, in addition to its contribution to the United Way/Centraide, which was $2.8 million.

In addition, $13.5 million in sponsorships was granted to over 1,400 organizations or events in four spheres of activity.



Supporting universities

Every year Hydro-Québec contributes funding to universities, not only in the form of donations but also in the form of chairs and R&D contracts that help them to develop and apply state-of-the-art expertise.

Donations, chair endowments, and R&D contracts ($ 000)

Educational institution or research group	2006
Université de Montréal	631.5
École des Hautes Études commerciales	248.1
École Polytechnique de Montréal	1,144.6
Université du Québec en Abitibi-Témiscamingue	29.1
Université du Québec à Chicoutimi	499.0
Université du Québec à Montréal	793.6
Université du Québec en Outaouais	125.0
Université du Québec à Rimouski	148.0
Université du Québec à Trois-Rivières	326.6
Institut national de la recherche scientifique	150.0
Fondation universitaire de l'Université du Québec	120.0
McGill University[a]	15.0
Concordia University[a]	35.0
École de technologie supérieure	307.3
Université Laval	1,781.1
Université de Sherbrooke	738.5
Ouranos, Cirano and Institute of Electrical Power Engineering	1,476.2
Institutions outside Québec	367.9
Total	**8,927.5**

a) A ten-year commitment was approved by Hydro-Québec's Board of Directors to allocate $1 million per year to McGill University and $800,000 per year to Concordia University, beginning in 2007. A similar eight-year commitment of $1 million was approved for the Université du Québec à Rimouski.

Théâtre du Nouveau Monde

"Hydro-Québec has contributed a great deal to the development of the TNM's mission. As presenting sponsor of our annual subscription campaign for many seasons, Hydro-Québec is undeniably, for us and for many organizations, a major contributor to culture in Québec."

Lorraine Pintal
Artistic Director and General Manager
Théâtre du Nouveau Monde

A program for employees with community spirit

Several years ago, Hydro-Québec introduced a program that offers its employees funding of up to $1,000 for organizations where they volunteer. The program's objective is to encourage community service among employees. In 2006, 261 employees took advantage of this program, for a total amount of $202,300.

Dialoguing with youth

Main Activities in 2006

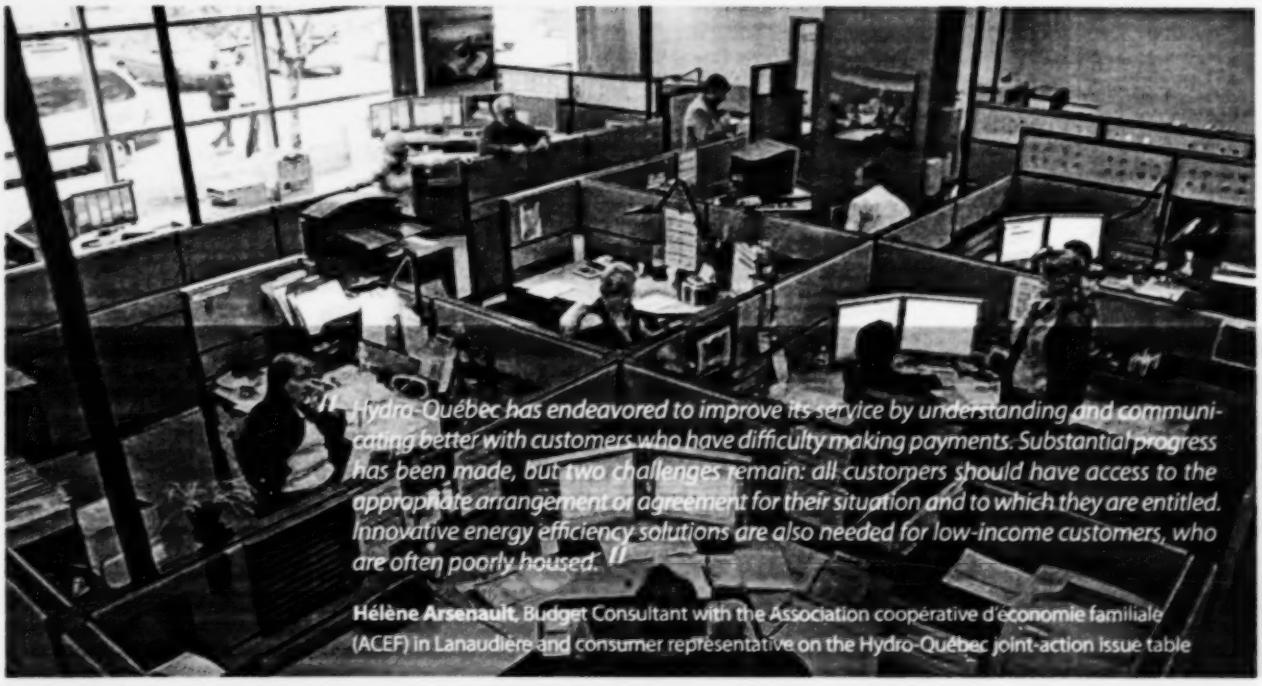
Activity	Description	Public reached
Tools and publications	*Envirovolt* game kits were distributed through the "Les Débrouillards" science clubs; the game tests youngsters' knowledge of our environmental achievements.	Nearly 1,300 pupils, ages 8 to 12, in Québec
	Hydro-Québec's Web site contains educational materials such as an interactive game on sustainable development called *Are you sustainable?*, as well as a list of topics on which speakers are available. There is also a portal for job offers.	Children and teachers in preschool, elementary and secondary schools, colleges and universities
	Advertising features and contests in *Les Débrouillards* magazine on topics related to wind power, energy conservation and technological innovation.	1,000 students, ages 9 to 14, participated in the contest
Presentations and tours	*Blue Water = Green Energy* workshop promoted hydroelectricity as a renewable energy source that helps protect the environment against climate change.	8,200 elementary and secondary school students
	Presentations during the Techno-Sciences tour by the Association de recherche industrielle du Québec encouraged students not to drop out of school and promoted jobs in science and technology.	80 presentations to 2,800 secondary-school students in Greater Montréal
	In cooperation with the City of Rivière-du-Loup, we gave talks in secondary schools on the environment and energy efficiency.	Over 2,000 secondary-school students
Funding and mentorship	For the regional science fairs and Québec finals, in conjunction with the Conseil de développement du loisir scientifique, 13 Énergie awards (12 regional and one provincial) were given for the best energy-related projects. The Québec delegation to the International Science Fair in Durban, South Africa, received funding.	Participants in science fairs in Québec
	Hydro-Québec scientists and technologists acted as mentors for elementary-school teachers to develop science activities.	Elementary-school teachers

The *Envirovolt* game encourages children to discuss the best way to create a power system that takes communities and land use into account and that will have a minimum impact on the environment.

Our youth programs focus on education about environmental issues related to hydropower and other generating options, as well as stimulating curiosity about science and technology.

Each year, many school groups are given tours of some of our generating stations and the Électrium, our interpretation centre on electric and magnetic fields.

In 2006 we supported a dictation-style educational project at the elementary and kindergarten levels designed to raise awareness about global challenges and environmental protection while fostering mastery of written French.



"Hydro-Québec has endeavored to improve its service by understanding and communicating better with customers who have difficulty making payments. Substantial progress has been made, but two challenges remain: all customers should have access to the appropriate arrangement or agreement for their situation and to which they are entitled. Innovative energy efficiency solutions are also needed for low-income customers, who are often poorly housed."

Hélène Arsenault, Budget Consultant with the Association coopérative d'économie familiale (ACEF) in Lanaudière and consumer representative on the Hydro-Québec joint-action issue table

Daily dedication to our customers.

Partnering with Our Customers

Satisfying our customers' needs and expectations

Hydro-Québec measures overall customer satisfaction so that it can adjust its practices and programs. This year, overall customer satisfaction fell slightly to 7.25 on a scale of 10, compared to 7.28 in 2005.

Residential customers

In 2006, the expectations deemed by our residential customers to be priorities remained the same as in previous years: facility security, respect and understanding of customers, fair and equitable treatment of customers, low rates and accurate billing.

Various measures are developed for customers with special needs, including customers in cultural communities, low-income households and those with payment difficulties. For example, we have agreements with organizations that work with new immigrants and can serve them in their own language and help them understand their bills.

For low-income households, we are working with family assistance organizations like ACEF on energy efficiency measures.

Business customers

Hydro-Québec has many business customers and offers them a range of services and programs suited to their energy consumption. Here are the main ones:

- Consulting services to reduce energy consumption
- Support programs for energy optimization initiatives
- Rebates on the purchase of energy-efficient products
- Technical services for solving problems specific to large-power customers, with the assistance of international-calibre specialists and top R&D centres, including Hydro-Québec's research institute.

According to our surveys, business customers have much the same expectations as residential customers. Their priorities include accurate billing, respect and understanding, fair and equitable treatment, competitive low rates, and reliable, fast, effective responses to their requests or inquiries.

New customer information system

In January 2006, our new Customer Information System (CIS) was deployed for our 150,000 business and commercial customers. We are now working on deployment for our three million residential customers, scheduled for January 2008. This major information system upgrade involves numerous challenges and is one of the most extensive in North America.

Responding to complaints and claims

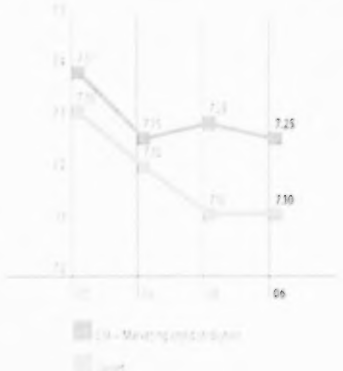
To provide better service, we log and process customer complaints and claims. In 2006, 12,868 complaints and claims were documented, versus 12,804 in 2005. Complaints dealt mainly with outages (22%), voltage fluctuations (17%), property damage (8%) and system maintenance (7%).

If the response or settlement does not satisfy the customer, an appeal can be addressed to the Régie de l'énergie. In 2006, 100 appeals were filed, compared to 74 in 2005.

Noteworthy in 2006

- Special payment arrangements for low-income customers and those with payment difficulties: 22,475 such arrangements were reached, covering debts of $26.5 million.
- Personalized payment arrangements, new in May 2006, for 1,684 low-income customers whose problem was not solved by a special payment arrangement.
- Service is maintained or restored in winter for customers who are in arrears or have not fulfilled the terms of their payment arrangement and whose heating system is dependent on electricity: 1,865 service reconnections in winter 2005–2006.
- Over 5,000 employees received training in the confidential handling of personal information.

Customer satisfaction index (scale of 10)



Protecting public health and safety

Securing our facilities

Recently our customers have added security at our facilities to their list of expectations. In response to this concern, Hydro-Québec developed a facility security plan in 2005. The company has also taken steps to anticipate all types of potential threats to its facilities and is working to heighten the security awareness of its employees. Roll-out of the security program continued in 2006 and should be completed in 2007.

A telephone line (1 877 816-1212) is always available so that anyone inside or outside Hydro-Québec can report any unusual event that may have an impact on security.

Noteworthy in 2006

- Daily perimeter checks by security guards at strategic facilities
- A security awareness campaign was introduced to inform employees about safe behaviors they should adopt.
- Public awareness campaign on electrical hazards: ads in trade magazines and newspapers, TV commercials, and distribution of educational material in elementary schools

Studying the potential effects of electric and magnetic fields and stray voltage

For nearly 30 years, research has been conducted on the possible effects of electric and magnetic fields (EMFs) on human health. To date, several hundred epidemiological studies have been completed, in addition to many laboratory experiments. Hydro-Québec has taken a prudent management position and continues to invest in this research, as well as in the dissemination of information to the general public through the Électrium, its interpretation centre on EMFs, and regular updates of company publications on the topic.

Here are some examples of studies in which the company participated in 2006, in conjunction with various local, national and international organizations:

- Analysis of sources of ambient magnetic fields in residential areas
- Neurophysiological effects of worker exposure to magnetic fields
- Effects of EMFs on dairy cattle

In addition, as part of the work of the liaison committee with the UPA, a practical guide dealing with stray voltage on farms was published for cattle and pig farmers who have difficulties with livestock productivity.

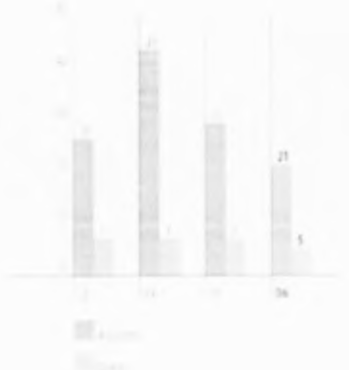
Promoting the safe use of electricity

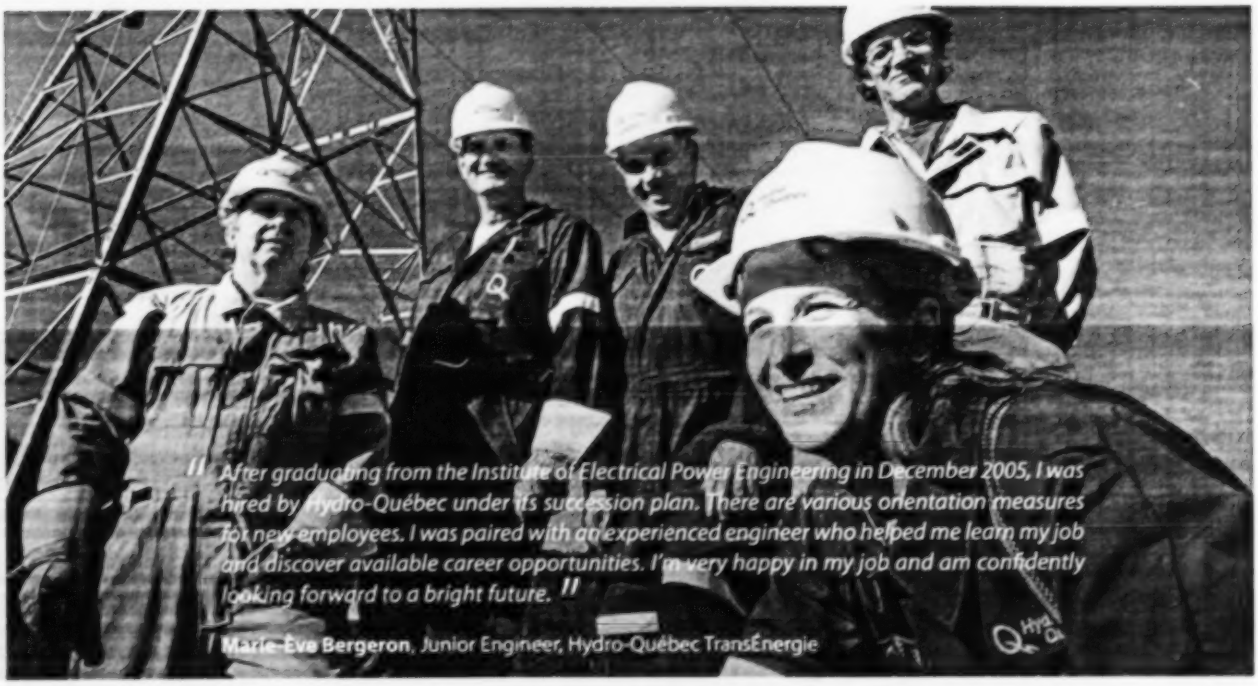
Hydro-Québec constantly strives to educate the public about the importance of using electricity safely. Our Web site on power safety provides information, and safety reminders are broadcast on television throughout the year. Training is also provided for various trades.

Despite all the company's efforts, electricity-related accidents occur every year. In 2006, there were 21 accidents: half involved pruning or the delivery of materials.

In addition, five deaths by electrocution occurred in Québec in 2006. Four of those were trades workers.

Electricity-related accidents and deaths
(number)




" After graduating from the Institute of Electrical Power Engineering in December 2005, I was hired by Hydro-Québec under its succession plan. There are various orientation measures for new employees. I was paired with an experienced engineer who helped me learn my job and discover available career opportunities. I'm very happy in my job and am confidently looking forward to a bright future. "
Marie-Eve Bergeron, Junior Engineer, Hydro-Québec TransÉnergie

A transmission line crew.

Our Employees, the People behind Our Success

Ensuring competency retention and development

Our 22,587 employees are spread throughout Québec. For the past three years, the proportion of women in our workforce has risen: 30.6% this year, it was 29.8% in 2005 and 29.4% in 2004. The percentage rose most in the Specialists, Professionals, Management and Technicians job groups.

Our diversity management project is ongoing; it promotes an open culture to enrich Hydro-Québec's workforce with competent employees from the target groups (women, Aboriginals, ethnic minorities, visible minorities, handicapped people).

In six years, our corporate succession plan has enabled us to introduce a number of measures to manage various aspects of the succession problem.

In 2006, we hired 1,360 people to fill vacancies left mainly by retirements. The number of new hires has risen slightly over the past six years. Moreover, 64% of our new employees are age 35 or under. This age bracket now represents 13.2% of our workforce, compared to 11.7% in 2005 and 11.2% in 2004.

We also worked with universities to set up the Institute of Electrical Power Engineering (IEPE) which will train a sufficient number of high-calibre graduates to meet the needs of Hydro-Québec and the industry.

Training our employees

Although the requirement under Québec legislation is 1% of payroll, Hydro-Québec spent 3.9% on employee training in 2006. Seventy-one percent of our employees have participated in at least one training activity.

Because of workforce renewal in the coming years, we anticipate a rise in training needs. The gradual introduction of various strategies, such as skills management focusing on vulnerable areas and the use of new training technologies, should help to keep costs at an acceptable level.

The company is putting more and more effort into developing distance (non-classroom) training for greater flexibility in work organization. As an added bonus, distance training technology will reduce travel and the resulting greenhouse gas emissions.

Noteworthy in 2006

- Some 270 people participated in awareness sessions to learn about Aboriginal nations.
- 5,962 person-hours of environmental training were dispensed to 2,438 participants.
- Between 2002 and 2006, we staffed 146 vulnerable positions early so that knowledge could be transferred or recorded.

Motivating our employees

For over ten years, we have conducted an annual survey of employees; the results have been used to develop action plans to boost motivation. The satisfaction and motivation index has risen for the third consecutive year, the best result since 1995.

We signed a new collective agreement with the union representing specialists and professionals at Hydro-Québec and agreed on salary clauses for 2007 and 2008 with six other unions.

Employee age pyramid – 2006

Distribution of permanent workforce – 2006

Promoting a healthy work environment

We participate in *allégo*, an initiative of Montreal's Agence metropolitaine de transport to promote the use of other means than the single-occupant car to get to work. We provide self-service bicycles for employees' use and offer incentives for using public transit and carpooling.

Ensuring health and safety

Hydro-Québec uses various measures to provide a safe work environment for its employees. The work-related accident frequency rose slightly in 2006, from 3.26 to 3.33, after decreasing for three years in a row.

Noteworthy in 2006

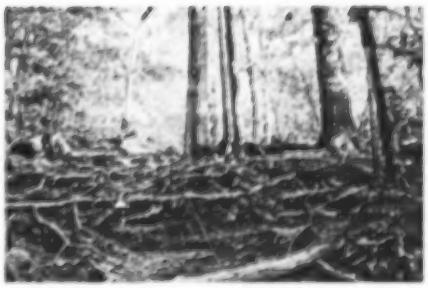
- Biohazards (pandemics) are now covered in the company's business risk portfolio. Each business unit has added the recommended measures to its emergency plan and implemented the priority measures.
- Due-diligence compliance in health and safety was verified with voluntary audits which noted strong points and recommended corrective action for aspects requiring improvement.
- Use of the Employee Assistance Program rose from 6.48% in 2005 to 6.84% in 2006. We have added a service for employees who are caring for an elderly parent.

Encouraging environmentally responsible behavior

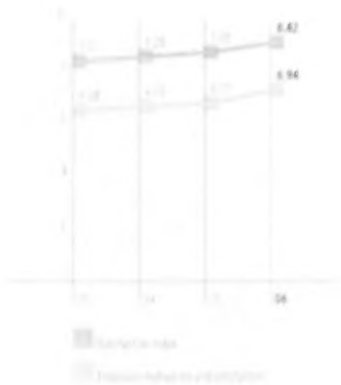
We encourage our employees' environmental and sustainability initiatives. For example, every year in May we organize various Environment Month activities. In 2006, we challenged our employees to commit to sustainability action. Over 2,300 employees responded.

Sustainability awards

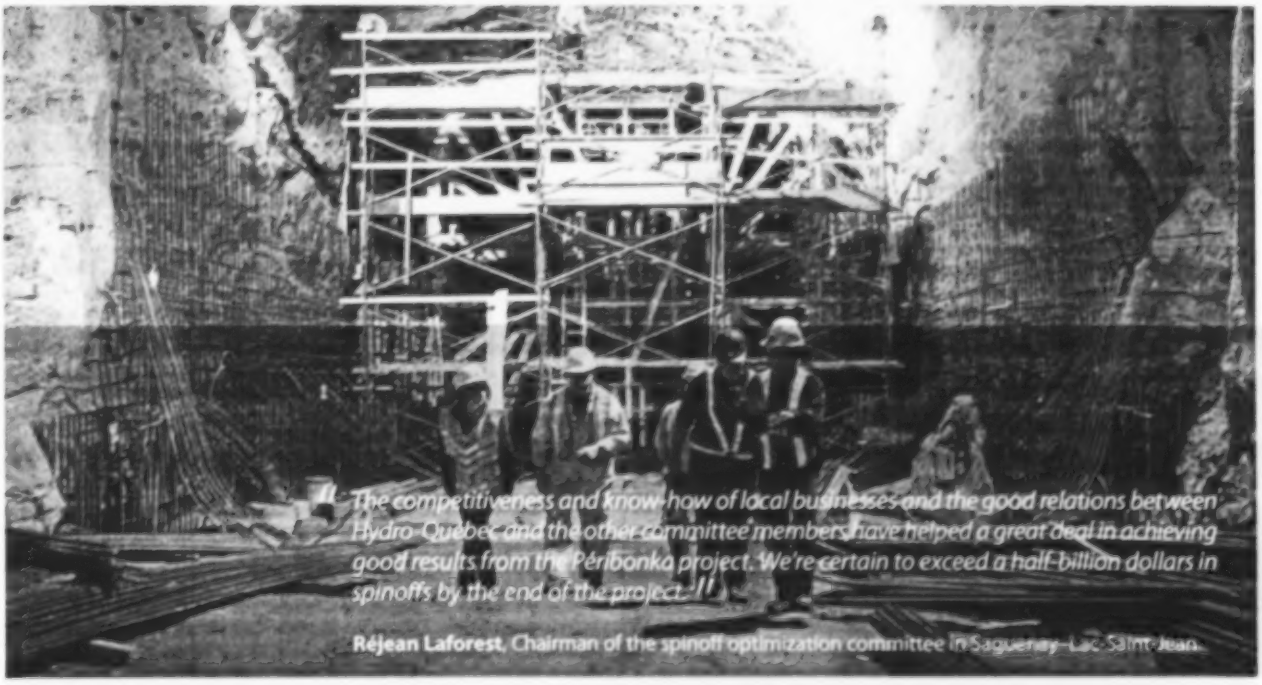
Hydro-Québec pays annual tribute to employees' environmental and sustainability commitment. In 2006, the Gold prize in the Environmental Achievements category was awarded for a new maintenance process that will make power poles last longer and save trees. The winning team donated their $1,000 prize to the environmental protection fund for the Mont Saint-Hilaire Biosphere Reserve. Their donation will support the restoration of the mountain's only red pine stand, which is endangered.



Employee motivation and satisfaction (scale of 10)



Work-related accident frequency*


"The competitiveness and know-how of local businesses and the good relations between Hydro-Québec and the other committee members have helped a great deal in achieving good results from the Péribonka project. We're certain to exceed a half-billion dollars in spinoffs by the end of the project."
Réjean Laforest, Chairman of the spinoff optimization committee in Saguenay–Lac-Saint-Jean

Péribonka jobsite.

Socioeconomic Spinoffs for Québec and Its Regions

Contributing to the Québec economy

Hydro-Québec is present throughout the province and plays an important role in its economy, mainly through its operations, capital spending, purchases from independent power producers, and procurement of goods and services.

In 2006, net income rose by $1,489 million to $3,741 million.

Income from continuing operations reached $2,797 million.

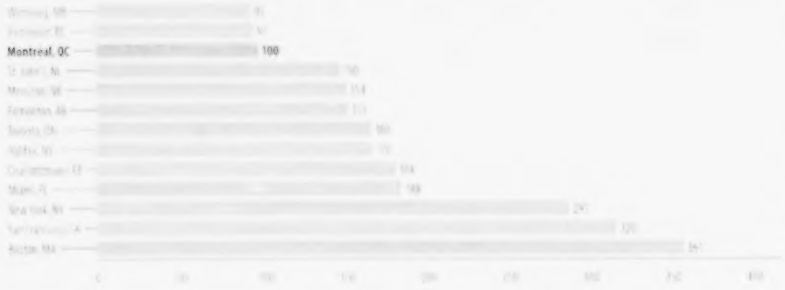
Income from discontinued operations was $944 million owing mainly to the sale of Transelec in Chile.

Revenue for the year was $11,061 million, up $273 million over 2005.

Net exports accounted for only 3.9% of our sales volume but generated 27% of our net income.

We declared dividends of $2,342 million for 2006. This tenth consecutive dividend payment, the largest to date, will bring the total dividends paid to our shareholder since 1998 to more than $8.7 billion.

Comparative index of electricity prices at April 1, 2006 – Residential customers[a]



Hydro-Québec's residential rate is one of the lowest in North America. Since many households heat with electricity, Québec ranks among the world's major consumers of electricity.

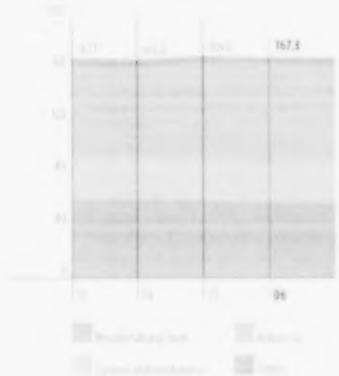
[a] Monthly bill (before taxes) for a consumption of 1,000 kWh.

Hydro-Québec's Contribution to the Québec Economy

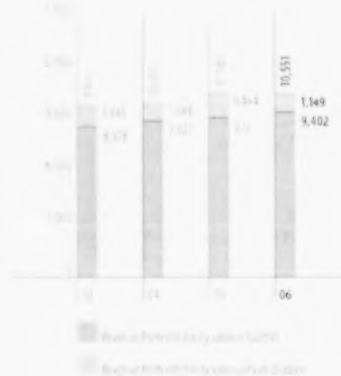
	2003	2004	2005	2006
Permanent workforce as at December 31[a]	18,317	18,835	19,009	19,176
Temporary workforce (annual average)[a]	3,596	3,567	3,577	3,799
Capital tax ($M)	296	324	330	261
Municipal and school taxes ($M)	33	34	36	36
Tax on public services ($M)	–	–	229	230
Procurement of goods and services inside and outside Québec ($M)	2,294	2,394	2,367	2,673
Proportion procured from Québec businesses (%)	93	94	92	92
Direct jobs sustained by procurement, including purchases outside Québec (person-years)	16,119	15,000	12,654	14,000
Integrated Enhancement Program ($M) (grants from Hydro-Québec)	4.5	1.7	7.8	1.1

[a] Excludes employees of subsidiaries and joint ventures.

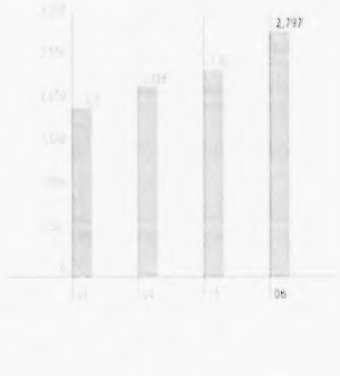
Electricity sales in Québec by category (TWh)



Revenue from electricity sales inside and outside Québec ($M)



Income from continuing operations and dividends declared ($M)



Supporting Regional Vitality

Open house celebrating the 50th anniversary of the first hydroelectric generating station commissioned by Hydro-Québec. Over a hundred people participated in this event (North Shore region).

Promoting regional development

The economy of several Québec regions depends on the development of hydroelectric potential. Thanks to Hydro-Québec's most recent hydroelectric projects, the Saguenay–Lac-Saint-Jean, Mauricie and Northern Québec regions will benefit from substantial spinoffs.

Moreover, the development of wind power will generate major spinoffs in the regional county municipality of Matane and in the Gaspé–Magdalen Islands region. The 2006 spinoffs for private wind power projects in these areas have been estimated at $215 million.

Welcoming the public to our facilities

Opening our doors to visitors entails significant spinoffs. In 2006, nearly 150,000 people enjoyed free guided tours at 13 of our facilities, including sites operated under partnerships. For example, the Cité de l'énergie (Mauricie region) and Sept-Chutes generating station interpretation centre (Quebec City region), administered by independent organizations, received some 50,000 and 30,000 visitors respectively in 2006. The Électrium, our interpretation centre on electric and magnetic fields (Montérégie region), and the Manicouagan generating complex (North Shore region) together attract over 30,000 visitors annually.

Encouraging local initiatives

Through its Integrated Enhancement Program, Hydro-Québec funds enhancement projects for the biophysical and human environment in communities affected by major transmission projects. In 2006, the main initiatives were in the Montérégie and North Shore regions. The municipality of Sainte-Cécile-de-Milton received grants relating to the construction of Montérégie substation, the 735-kV Des-Cantons–Montérégie–Hertel line, and three other 120-kV lines. These funds enabled it to continue development of its recreational park and to create a tool for characterizing natural environments with substantial ecological value. The grants to the RCM of La Haute-Côte-Nord were used to introduce curbside collection of recyclables.

To support development in the Haut-Saint-Maurice region, Hydro-Québec will pay $18 million into a fund over a 50-year period as a compensatory measure for construction of the Chute-Allard and Rapides-des-Cœurs hydroelectric generating stations, which will be commissioned in 2008. The fund will be administered by an advisory committee of local residents. Projects submitted will have to meet strict criteria and a balance will be maintained between social, cultural, environmental and economic projects.

Estimated Funding under the Integrated Enhancement Program

	2006
Number of initiatives	11
Hydro-Québec grants ($M)	1.1
Community contribution ($M)	0.6
Project value ($M)	1.7

In 2006, with a view to continuing improvement, we implemented a new process for collecting, consolidating and validating the data published in our Sustainability Report and the related Web site.

The data consolidated in this year's report is the responsibility of Management. The financial information presented here is in accordance with that contained in the *Annual Report 2006*.

This report and the related Web site have been prepared according to the third-generation guidelines of the Global Reporting Initiative (GRI). A table of concordance showing our performance in relation to the GRI indicators can be consulted on our Web site.

Units of Measure

$M:	millions of dollars
$B:	billions of dollars
kV:	kilovolt (one thousand volts)
kW:	kilowatt (one thousand watts)
kWh:	kilowatthour (one thousand watthours)
MW:	megawatt (one million watts)
MWh:	megawatthour (one million watthours)
GW:	gigawatt (one million kilowatts)
GWh:	gigawatthour (one million kilowatthours)
TWh:	terawatthour (one billion kilowatthours)

The following documents may be obtained from our Web site
www.hydroquebec.com
or by calling 1 800 ENERGIE (363-7443)

Annual Report 2006

Sustainability Report 2006
(this document)

Profil régional des activités d'Hydro-Québec – 2006

Financial Profile 2006–2007

© Hydro-Québec

Affaires corporatives
et secrétariat général

Reproduction authorized
with acknowledgment of source
Legal deposit – 2nd quarter 2007

Library and Archives Canada

Bibliothèque et Archives nationales du Québec

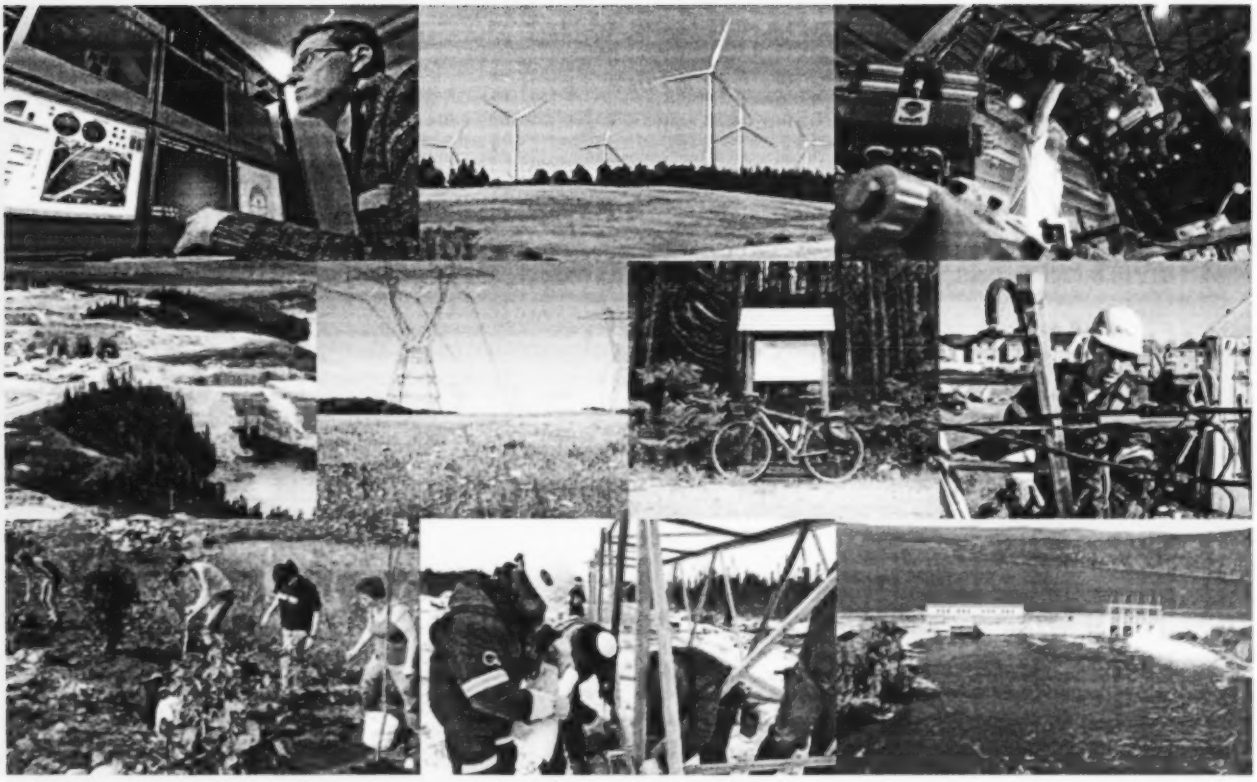
ISBN 978-2-550-48986-3
ISBN 978-2-550-48987-0 (PDF)

2007G025A

Ce document est également publié en français.

This document can be recycled. It is printed with vegetable-based ink on 100% post-consumer recycled paper made in Québec and de-inked without chlorine.

FSC
Recycled



www.hydroquebec.com/sustainable-development

Hydro Québec

2007G025A